A STRATEGIC MANAGEMENT PLAN FOR THE SUSTAINABLE DEVELOPMENT OF GEOTOURISM IN SOUTH AFRICA

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OPSOMMING IN AFRIKAANS

Suid Afrika het van die wêreld se mees verteenwoordigende en bes-bestudeerde en soms asemrowende voorbeelde van geologiese verskynsels. Hierdie voorbeelde strek oor die hele opeenvolging van die aarde se geskiedenis en ten spyte daarvan het hulle sover min erkenning gekry. Die geologiese wonders van die land was nie aan die publiek en toerisme industrie bekend gestel nie omdat die bemarking van die land tot 'n groot mate gefokus het op die "*Groot Vyf*". Bewaring is desnieteenstaande krities om hierdie geologiese skatte die potensiaal het om miljoene toeriste jaarliks plaaslik en van oorsee te trek.

Die waardering vir geologiese en mynboukundige erfenis is baie verder internasionaal ontwikkel sedert die 19^{e} eeu as wat die geval in Suid Afrika was. Wêreld bekende natuur en nasionale parke in die VSA sluit Yellowstone, Grand Canyon, Wind Cave en die Hawaii

Vulkaniese Park in en meeste van hulle is hoofsaaklik natuur-gebaseerde toerismebestemmings.

Geotoerisme is 'n nuwe konsep wat in Digne-les-Bains, Frankryk, sy beslag in 1991 gekry het. Dit word vir opvoedkundige, omgewings- en sosiaal-ekonomiese doeleindes gebruik om geologie aan die publiek in Europa en Sjina waar geoparke geskep is, bekend te stel. Geotoerisme bestaan uit geologie, mineralogie, palaeontologie, geoplekke, werkende en uitgewerkte myne, grotte, en versamelings van geologiese voorbeelde in museums. Party geoplekke was as Wêreld Erfenis Gebiede verklaar a.g.v. hulle universele waarde. In Suid Afrika is Wêreld Erfenis Gebiede met natuurlike eienskappe die volgende:

1. Die Groter St. Lucia Vleiland Park (iSimangaliso) (1999)
2. Kaapse Veldblomme Bewarings Gebied Areas (2004) ('n reeks plekke), en
3. Die Vredefort Koepel (2005).

Hierdie gebied is in wese ekotoerisme met 'n additionele 'sub'-tema (mynbou en industrieel). Dit is ook in 'n sekere mate deel van ekotoerisme wat ekologies volhoubare tourisme behels met 'n ekstra fokus op natuurlike gebiede.

Om die bronne die beste te benut, is 'n studie onderneem om 'n stategiese plan vir die volhoubare ontwikkeling van geotoerisme in Suid Afrika te ontwikkel. Die studiemetode bestaan uit 'n literatuurstudie, 'n analise van geotoerisme praktyke oorsee, veldwaarnemings en besprekings met verskeie belanghebbendes in die gevallestudie gebiede, 'n evaluasie van teoretiese en en veldwaaremings, en die voorgestelde implementering van die bevindings. Die fokus van die studie sentreer op die bestuursproses van beplanning, ontwikkeling, bestuur, bemarking en die implementering daarvan m.b.t. geotoerisme.

Vier navorsingsdoelwitte is geformuleer wat op die volgende konsentreer:

1. Die teoretiese fondamente van volhoubaarheid en hulle toepasbaarheid m.b.t. geotoerisme
2. Evaluasie van internasionale bestaande konsepte en riglyne vir geotoerisme and geobewaring
3. Evaluasie van die ontwikkeling van geotoerisme, plek en besoekersbestuur en hoe die verskillende benaderings en verskeie werktuie vir die bestuur van geotoerisme aangewend kan word, en
4. Kriteria vir die implementering van 'n strategiese bestuursplan vir geotourisme in Suid Afrika.

Die volhoubare bestuursplan van Gebhard, Meyer en Roth (2007: 1-66) is as 'n basis gebruik om 'n bestuurplan te ontwikkel. Aspekte wat geinkorporeer is, is hoekom geotoerisme bestuursplanne behoort ontwikkel te word, die prosedures vir planontwikkeling, riglyne oor belanghebbende-betrokkenheid, hersiening en monitering, en 'n gedetaileerde patroon (voorbeeld) vir 'n geotoerisme bestuursplan in bewaringsgebiede.

Gevolgtrekkings is gemaak vanaf die literatuur en Internet-navorsing. Besoeke wat aan Europese Internationale Konferensies, geoplekke en geoparke gedoen was, het die grondslag vir hierdie studie gelê toe 'n bestudering van bestaande geotoerisme projekte gemaak is. Vervolgens is ses gevallestudies onderneem om 'n oorsig van geotoerisme in die land te verkry. Dit is gedoen in:

1. Nasionale Kruger Wildtuin (NKP)
2. Pelgrimsrus
3. Kromdraai Besoekers Myn
4. Die Diamond industrie van Kimberley
5. Die Wieg van die (WM), en
6. Geowetenskap Museum, Pretoria.

Die geoplekkeprojek in die NKW het as 'n baie praktiese voorbeeld gedien van hoe geotoerisme in die toekoms aan te wend.

Die bydrae van die studie was:

1. Die stategiese plan wat ontwikkel is kan as 'n basis dien vir die ontwikkeling van geotoerisme in Suid Afrika
2. Die riglyne wat deur hierdie studie ontwikkel is kan as 'n handige instrument beskou word in die meting en bereiking van volhoubaarheid
3. Die resultate van die verhandeling kan entrepreneurs/ontwikkelaars help, in die vestiging van toekomstige geoplekke, geo-gebiede en geoparke
4. Die studie maak 'n aansienlike bydrae in die uitbreiding van literatuur op die gebied van geotoerisme
5. Dit was die eerste studie van hierdie soort in Suid Afrika
6. Een van die gevallestudies van die verhandeling vorm die basis vir drie aanbiedings by twee internasionale konferensies en verdere een by 'n geotoerisme werkswinkel in Suid Afrika, en
7. Een van die gevallestudies van die verhandeling vorm ook die basis van drie internasionale konferensie-aanbiedings.

Die hoofbevindings van die gevallestudies was:

1. Daar bestaan min of geen kennis van geotoerisme as 'n produk, en dit probeer om die skoonheid oor die ontstaan van die aarde se oorsprong te verklaar (Coenraads en Koivula, 2007)
2. Daar was nog 'n beleid, nog 'n strategiese geotoerisme-ontwikkelingsplan
3. Min beplanning, bestuur en bemarking was gedoen. Die Wieg van die Mens (WM) is 'n uitsondering omdat ekstensiewe navorsing sedert 1997 gedoen was voordat 'n aansoek as 'n Wêreld Erfenis Gebied (WEG) gedoen was. Huidiglik is dit 'n uitstaande besoekersbestemming
4. Baie min finansiële ondersteuning is nog van die Regering, lokale munisipaliteite, of mynbou/finansiële maatskappye ontvang
5. Te min finansiering was 'n probleem in al die gevallestudies
6. Geen geobewarings-wetgewing bestaan, en

7. Bewaring was voorsien in vier van die gevallestudies omdat hulle in beskermde gebiede was. Twee van die gevalle was gesetel in 'n gebied of gebou wat self beskerm was a.g.v. spesifieke besoekersure.

SUMMARY IN ENGLISH

South Africa has some of the world's most representative and well-studied, quite spectacular examples of geological phenomena. These examples span almost the entire range of Earth's history and yet, so far, they have received little recognition. The geological wonders of the country have not been presented to the public and the tourism industry because the marketing of the country is, to a great extent, focussed on wild life's "*Big Five*". Conservation is nevertheless critical to protect these geological treasures that have the potential to draw millions of tourists annually, from home and abroad.

Internationally, the appreciation for geological and mining heritage has advanced much further since the 19th century than it has in South Africa. World famous nature, and National, Parks in the USA include Yellowstone, the Grand Canyon, Wind Cave and the Hawaii Volcanic Park and these are entirely nature-based tourism destinations.

Geotourism, a new concept coined in Digne-les-Bains, France, in 1991 is used for educational, environmental and social-economic purposes to make geology more accessible to the public in Europe and in China where geoparks have been created. Geotourism consists of geology, mineralogy, palaeontology, geosites, operating and defunct mines, caves, and collections of geological specimens in museums. Some geosites have been declared World Heritage Sites because of their universal value. In South Africa World Heritage Sites with natural properties that have been declared are:

1. The Greater St. Lucia Wetland Park (iSimangaliso) (1999)
2. Cape Floral Protected Region Areas (2004) (a serial site)
3. The Vredefort Dome (2005).

This area is in essence ecotourism with an additional 'sub'-theme (mining and industrial). It is to a certain extend part ecotourism which is ecologically sustainable tourism that has an added focus on natural areas.

To seek the best use of these resources, a study was undertaken to develop a strategic management plan for the sustainable development of geotourism in South Africa. The study was necessary to plan for the sustainable development of geotourism in South Africa. The method of research consisted of a literature study, an analysis of geotourism practices oversees, field visits and discussions with various stakeholders in the case study areas, an evaluation of theoretical and field observations, and the proposed implementation of the findings. The focus of the study centred on the management process of planning, development, management, marketing and the implementation thereof, as far as geotourism was concerned. Seven research objectives were formulated focussed on: 1) The theoretical foundations of sustainability and their applicability to geotourism, 2) Evaluation of

international concepts and guidelines for geotourism and geoconservation, 3) Evaluation of the development of geotourism, site and visitor management and how the various approaches and tools for the management of geotourism could be applied, and 4) Criteria for the implementation of a strategic management plan for geotourism in South Africa. The sustainable tourism management plan of Gebhard, Meyer and Roth (2007(b):1-66) was used as a basis to develop a geotourism management plan. Aspects that were considered in the formulation of the strategic plan included why geotourism management plans should be developed, the procedure for plan development, guidance on stakeholder involvement, review and monitoring, and a detailed template for the compilation of a geotourism management plan in protected areas.

Based on the literature and Internet research, conclusions were drawn. Visits to European International conferences, geosites and geoparks visited laid the foundation for this study when an examination of existing geotourism projects was made. Subsequently, six case studies were undertaken to get an overview of current geotourism practise in the country. The studies were completed at:

1. Kruger National Park (KNP)
2. Pilgrim's Rest
3. Kromdraai Visitor Mine
4. The diamond industry of Kimberley
5. The Cradle of Humankind (COH), and Geoscience Museum, Pretoria.

The geosites project in the KNP served as a very practical example of how geotourism could be applied in the future.

The contributions made by this study were:

1. The strategic plan that was developed could serve as basis for development of geotourism in South Africa
2. The guidelines developed by this research could be considered a useful tool in measuring and achieving sustainability
3. The results of the thesis could assist entrepreneurs/developers in the establishment of future geosites, geo-areas and geoparks
4. The study made a significant contribution in the expansion of literature in the area of geotourism
5. This was the first study of this kind in South Africa
6. One of the case studies of the thesis formed the base for three presentations at two international conferences and for a further one at a geotourism workshop in South Africa, and
7. One of the case studies of the thesis also formed the basis of three international conference papers.

The main findings from the case studies were:

1. There exists little or no knowledge of geotourism as a product, and it seeks to explain the beauty of the origins of the Earth (Coenraads and Koivula, 2007)

2. There was neither a policy nor strategic geotourism development plan
3. Little planning, management and marketing have been done. The Cradle of Humankind (COH) is an exception as extensive research was done from 1997 before the application for a World Heritage Site was submitted. Currently, it is an excellent visitor destination
4. Very little financial support has been received either from the Government, local municipalities, or mining/financial companies
5. Under-funding was a problem for all the case studies
6. No geoconservation legislation exists, and
7. Protection was provided to four of the case studies because they were located in protected areas. Two of the cases were located in an area or building that themselves were protected because of specific visiting hours.

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ACRONYMS

4Cs ..... Cut, carat, colour and clarity
ACIUCN ..... Australian Committee for the International Union for the Conservation of Nature
AGRED..... African Gamebird Research, Education and Development Trust
ATM..... Electronic cash machine
BR ..... Biosphere reserves
CCMST..... Concentric Circles Model of Sustainable Tourism
CGS..... Council for Geoscience
COH ..... Cradle of Humankind
CVA ..... Conjoint Value Analysis
DAC ..... Department of Arts and Culture
DACEL ..... Defence Academies & Colleges International e-Learning Conference
DBR ..... Deutsches Bergbau-Museum Bochum
DCFN.....Diamond Coast – Forever Namaqualand
DCSR ..... Department of Culture, Sport and Recreation
DEAT ..... Department of Environmental Affairs and Tourism
DME..... Department of Mineral and Energy Affairs

DMO ..... Destination Management Organisation
DST ..... Department of Science and Technology
EGN ..... European Geoparks Network
EMS ..... Environmental Management System
ESD ..... Ecologically Sustainable Development
FM & E ..... Festivals, meetings and events
FOSAGEMS ..... Federation of Southern African Gem and Mineralogical Societies
GGN ..... Global Geoparks Network (World Geoparks Network)
GIG ..... Geotourism Interest Group
GIG ..... Geotourism Interest Group
GIS ..... Geographical Information System
GLTP ..... Great Limpopo Transfrontier Park
GM ..... Geoscience Museum
GSSA ..... Geological Society of South Africa
IC ..... Interpretation Centre
IE ..... Intergenerational equity
IECMP ..... Integrated Environmental Conservation Management Plan
IEM ..... Integrated environmental management
IGU ..... International Geographical Union
IN ..... Interpretative Network
INMP ..... Interpretation Network Master Plan
ITE ..... International Tourism Exchange
IUCN ..... World Conservation Union
IUGS ..... International Union of Geological Sciences
KMDL ..... Kimberley Microdiamond Laboratory
KNP ..... Kruger National Park
LA 21 ..... Local Agenda 21
M&E ..... Monitoring and evaluation
MAB ..... Man and the Biosphere
MAL ..... Maropeng a'Afrika Leisure (Pty) Ltd
NFI ..... Northern Flagship Institution
NGO ..... Non Governmental Organisation
NGT ..... National Geographic Traveller
NPB ..... National Parks Board
NRF ..... National Research Foundation
NSSD ..... National Strategy for Sustainable Development
PPIs ..... Products, projects and initiatives
PPP ..... Public-private partnership
RBCMA ..... Rio Bravo Conservation and Management Area
REI FUND ..... GSSA Research, Education and Investment fund
SAA ..... South African Airways
SAHRA ..... South African Heritage Resources Agency
SAMA ..... South African Museums Association

SANParks.....South African National Parks
SIN.....The Scottish Interpretation Network
SMME.....Small, medium and micro-sized enterprises
STD.....Sustainable tourism development
STO.....Sustainable-based Tourism Organisation
TBL.....Triple bottom line
TGME.....Transvaal Gold Mining Estates
TIA.....Travel Industry Association of America
TNC.....The Nature Conservancy
TPA.....Transvaal Provincial Administration
UNESCO.....United Nations Educational, Scientific, and Cultural Organisation
UK.....United Kingdom
USA.....United States of America
VIPs.....Visitor Information Points
WEG.....Wêreld Erfenis Gebied
WM.....Wieg van die Mens
WHL.....World Heritage List
WHS.....World Heritage Sites
WITS.....University of the Witwatersrand
WTO.....World Travel Organisation
WTTC.....World Travel and Tourism Council

CHAPTER 1
INTRODUCTION, PROBLEM STATEMENT AND OBJECTIVES

1.1 INTRODUCTION

At the "*3rd International Conference on geoparks*" in Osnabrück, Germany, 22-26 June 2008, Dowling (2008:10) presented a new definition of geotourism as: "*Geotourism is sustainable tourism with a primary focus on experiencing the earth's geological features in such a way that fosters environmental and cultural understanding, appreciation and conservation, and is locally beneficial*". Alluding to the fact that it sustains and can certainly enhance the geographical character of the place being visited - its culture, environment, heritage and aesthetics and probably more significantly the well-being of all its residents. There are two viewpoints of geotourism:

1. The geological. It is mainly followed in Europe and China where geology is the point of departure, and
2. The geographical. It is followed in the United States of America (USA) where the emphasis is on the geographical sense of a place.

There is a certain overlap of geotourism with ecotourism even though only geological outcrops, geomorphology and caves are part of ecotourism. However, present and defunct mines and certain collections of geological specimens in museums are not part of the natural environment. The mining component of geotourism can also overlap into industrial tourism. A recent development is envisaged by Dowling (2008:69) that "*Geotourism is the new ecotourism*" (c.f. 3.5.2).

South Africa is well known for some of the world's most representative and well-studied, often quite spectacular examples, of geological phenomena. The geological formations span almost the entire range of Earth's history. Although geology (especially rock types, structures and tectonic processes) plays a fundamental role in shaping the landscape as it is seen today, geology receives comparatively little popular recognition.

[The country's] "*magnificent and varied scenery, the result of interplay between geological processes and climatic factors, draws millions of tourists annually from home and abroad, and can be appreciated by the tourist and scientist alike*" (Edwards, 1999:iii). The geological wonders of South Africa was not presented to the general public or the tourism industry because the previous marketing orientation of the country was, to a great extent, focussed on wild life's "*Big Five*". A notable exception from the South African side is Viljoen and Reimold's book: "*An introduction to South Africa's geological and mining heritage* (1999:1-193)." The authors describe some of the most typical places of geological interest (geosites) of South Africa's geological heritage (geoheritage). Their compilation comprises a guide to, and explanation of, some of the country's most outstanding and 'representative' geological features and geosites, as well as some of the country's mining history. The achievement of these authors is to draw the public's attention to geology in such a way that the non-specialist

can understand this often overlooked, but crucial, aspect of our natural heritage. The book also provides teachers of Earth Sciences and related fields such as geography, with a widely useable field guide and glossary. By linking, for the first time, the themes of environmental awareness, tourism, education and science, Viljoen and Reimold (1999:1-193) emphasise the need for protection and conservation of these treasures, for their aesthetic and historical values, as well as for scientific and educational reasons.

Internationally, however, the appreciation for geological and mining heritage is more developed, and has been so since the 19th century. World famous nature and national parks in the USA include Yellowstone, the Grand Canyon, Wind Cave and the Hawaii Volcanic Park, to name but a few, all of them being entirely nature-based tourists destinations. However, in Europe, these types of attractions are called geoparks and many old mines have been converted into visitor mines, with additional tourist attractions supplementing the geological tourism (geotourism) experience. A unique tourist experience is the Wieliczka Salt Mine in Poland, which has been transformed into a tourist destination where the visitor can wine and dine underground. The Hallstätter Salzbergwerk near Salzburg, Austria is another well-known salt mine that actively seeks visitors.

The academic foundations for research on geotourism were established originally in Europe and in China. Since the First International Symposium for the Protection of Natural Heritage took place in Digne-les-Bains, France, in 1991, numerous International conferences, seminars and workshops on geoconservation and geotourism have taken place in various countries throughout Europe. From these discussions, the idea of a geopark was developed. The European Geoparks Network was established in June 2000 in the context of the European LEADER IIC programme, by four Leader-II zones. ProGEO (The European Association for the Conservation of the Geological Heritage) coordinates the European Geoparks strategies. According to MacAdam (2008) by May 2008, there were 33 World Geoparks in Europe, 20 in China and 1 each in Brazil, Iran, Malaysia and Australia.

Another development was the idea of World Heritage. At the 1972 *Convention Concerning the Protection of World Cultural and Natural Heritage*, known in short as the World Heritage Convention, a single document linked together the concepts of nature conservation and the preservation of cultural properties. It sought to encourage the identification, protection and preservation of cultural and natural heritage around the world that are considered to be of outstanding value to humanity (http://whc.unesco.org/pg.cfm?cid=160). Properties that the World Heritage Committee has inscribed on the World Heritage List are cultural, natural and mixed properties.

In South Africa World Heritage Sites with natural properties that were declared are:

1. The Greater St. Lucia Wetland Park (iSimangaliso) (1999).
2. Cape Floral Protected Region Areas (2004) (a serial site).
3. The Vredefort Dome (2005).

World Heritage Sites with natural and cultural properties are the uKhahlamba-Drakensberg Park (2000), while The Cradle of Humankind (1999) is described as a cultural site (http://whc.unesco.org/pg.cfm?cid=31&l=en).

The focus of this study will centre on the management process of planning, development, management and marketing, together with the implementation thereof as far as geotourism is concerned. In this chapter, an overview of the proposed study and the research question will be given and the goals and objectives will be established, with the specific aim of establishing guidelines for the sustainable development of geotourism in South Africa. New concepts such as geodiversity, geoheritage, geotypes, geosites, World Heritage Sites, geoconservation, geoparks, International Network of Geoparks, World Geoparks Network and geo-education will also be discussed and clarified.

1.2 PROBLEM STATEMENT

Mendelsohn and Potgieter (1968:3) state that gold was discovered in conglomerate reefs on the Witwatersrand in 1868. To commemorate the event, the Geological Society of South Africa (GSSA) published a 124-page guide in Afrikaans and English by Mendelsohn and Potgieter (1968:1-124). In the guide, the geology of the Central Rand around Johannesburg and the mining history of Crown Mines Limited (the first mining giant) are well described. In the section regarding geology and the sixty-two places of geological interest (geosites), very informative geological sketches with explanations and photos are provided.

Geosites in South Africa were described by Toens (1985:1-72) and this was the first attempt to compile a geosites database. Only recently did a joint attempt by the "*Geoconservation and Geotourism Committee*" of GSSA start a geosites database. The Kruger National Park was mapped geologically from 1970-1980 ago by Schutte in various reports for the geological survey, and the results of the surveys were published in Koedoe (Schutte, 1986:13-37).

Geoconservation is essentially to maintain the best of the countries' geoscience heritage. Its role is to keep available the essential geotourism site resource needed for future research, education and training. A management and marketing strategy will strengthen and enhance it, according to De Bruyn en Klopper (2005:135-163) and Thompson and Strickland (1995:1-539). In 1995, the International Union of Geological Sciences (IUGS), with the support of UNESCO, decided to promote a new project to compile a global inventory and related database. For the geological community, such a database would have many other uses besides conservation. GEOSITES was started by the IUGS in 1996 and a new Global Geosites Working Group to undertake the work, was set up for geosites and terrains (Wimbledon, 1999). Whitfield and Barnardo (2005) note that a geosites database in South Africa was only started in 2004.

Geosites are located in National and Provincial parks where they are largely protected. The remainder, unfortunately, are not protected at all. Many geosites already have been vandalised (Reimold, 2004:4, 2005:1). Protection, therefore, is crucial, but the critical question asked by both the public and visitors is fully justified: "*What do you do with the geosites after preservation and conservation*?".

Poster presentations to link tourism and geology were displayed at Geocongress 2000 in Stellenbosch (July 2000). Brochures of 11 geosites of the Western Cape were also available for geological excursions. Another poster exhibition was held at the Geocongress in Windhoek, Namibia (July 2002). The "*4 billion years of Earth and Life symposium*" was held at the University of the Witwatersrand on the 4th August 2001, to involve the public in geology. This was followed by a similar theme: "*4 billion years of environmental change in Southern Africa: Earth science and sustainability – 2002*" during the World Summit on Sustainable Development. There was considerable interest from the public. More people attended the lectures in 2001 than in 2000.

Geotourism was identified as a way to help preserve mining heritage sites in South Africa. However, so far, little attention has been paid to mining geology and its tourism potential. By 2008, only a visit to Gold Reef City or to the diamond mines in Cullinan and Kimberley were open to visitors. Since 2002, the Diamond Coast - Forever Namaqualand (DCFN) at Kleinzee has also started to offer visits to see on-going diamond mine activities (www.coastofdiamonds.co.za). All other active or dormant (or mined-out) mines in the country are open to geoscientists only. The town of Pilgrim's Rest at least portrays the gold mining history of the previous century, but this is the exception to the rule of neglect.

"Agenda 21 for the Travel and Tourism Industry" (http://www.world-tourism.org/sustainable/doc/a21-contents.pdf) was a joint World Tourism Organization (WTO), World Travel and Tourism Council (WTTC) and Earth Council publication in 1996, and was drawn up in 1992 at the "*Earth Summit*" in Rio de Janeiro. It outlines practical steps that governments and private companies can take to implement the goals of the Rio Earth Summit, and so make the tourism sector more sustainable. During the conference summit, sustainability was, for the first time, mentioned in regard of the management of all resources in such a way that economic, social and aesthetic needs can all be fulfilled. For the successful implementation of Agenda 21, all parties involved had to commit themselves to political, environmental, social and economic undertakings. The role of Government departments, National Tourism Authorities and of representative trade organisations was important for the overall aim of developing a sustainable tourism programme for the long term (www.world-tourism.org/ sustainable/doc/a21.two.pdf, http://www.un.org/esa/sustdev/documents/ agenda21/english/agenda21toc.htm). Agenda 21 binds local authorities to implementing at local level the commitments made towards sustainable development by the international community. It has since become the main mechanism for community planning for sustainability. A Local Agenda 21 (LA 21) is an approach through which a local community defines a sustainable development strategy

together with an action program to implement it. Although a local authority initiates and provides leadership for the process; its success hinges on close cooperation between the population, Non Governmental Organisations (NGOs), and economic and social players. A recent study by Vourc'h and Denman (2003) looked at how tourism had been taken into account in LA 21 plans, as drawn up and implemented by local authorities. Therefore, that the case could be made that geosites in South Africa should be developed and managed according to sound business principles while implementing the concepts of Agenda 21.

Rust (2005) believes that "D*espite some encouraging signs by a few informed individuals, earth heritage tourism in South Africa remains far behind international standards. This is in spite of South Africa's key international position in the quality and for the extent of its global earth history. Whereas South Africa could have been a world leader in earth heritage recognition and promotion, it now lags far behind in geotourism. What a pity! South Africa needs to invest in its earth heritage development. Tourism, including geotourism, is one of the very profitable money-earners of the future. Money invested now will yield excellent dividends for a very long time to come*". From this quote, it is apparent that South Africa is a world leader in geodiversity, but not in geotourism. Therefore, there is an urgent need to promote Earth heritage with geotourism, so that additional income, through geotourism, can be generated in the future. The first of the geotourists will be predominantly geoscience professionals and members of other professional societies, but other segments that should be attracted will be predominantly local and overseas visitors, students and scholars.

Geotourism is a relatively new form of tourism that can be utilised in the future for sustainable development, for geo-education and for job creation. This, however, can only take place with the help of proper planning that focuses on the long term, that is, a strategic plan (Saayman 2002:96-111). Because of the role of past and present mining activities in the development of the country, geotourism must also include South Africa's mining heritage. Currently, virtually no awareness campaign or promotion about the geological wonders of the country exists. At present, there is not a proper strategic development and management plan for geotourism. Yet, geotourism is a niche market and cannot function alone so the geotourism industry will supplement and enhance other existing tourism industries. Geotourism will draw more tourists who will spend their money here. Thus, previously untapped natural resources can be exploited in a positive manner.

Coulter (2005:2-5) defines strategic management as a process of analysing the current situation; developing appropriate strategies; putting those strategies into action, and evaluating, modifying, or changing those strategies as needed. Strategic management is important because everyone in an organisation or destination should play a role in managing strategically. If employees manage strategically, it will make a difference to how well the organisation performs. An organisation/destination has to cope with changing situations in internal and external environments. The organisation must then develop and implement appropriate strategies. There are various diverse divisions, functions, and work activities that need to be coordinated and focussed on achieving the organisation's goals (Saayman,

2002:96-111). Added to this, since there are so many role players in tourism (or in this case, geotourism) it is not possible to achieve sustainability in the absence of a proper integrated plan, hence a strategic plan.

Based on the above, the following question can be asked that will also guide this study - what management plan and guidelines for geotourism development should be followed in order to ensure sustainability?

1.3 GOAL AND OBJECTIVES OF THE STUDY

The overall goal of the study is to develop a strategic management plan for the sustainable development of geotourism in South Africa. From this goal, a number of subordinate objectives have been identified, which are presented below.

1.3.1 RESEARCH OBJECTIVE ONE

To critically evaluate the theoretical foundations of sustainability and their applicability to geotourism.

1.3.2 RESEARCH OBJECTIVE TWO

To critically evaluate internationally existing concepts and guidelines for geotourism and geoconservation.

1.3.3 RESEARCH OBJECTIVE THREE

To critically evaluate the development of geotourism, of site and visitor management and how the various approaches and tools for the management of geotourism can best be applied.

1.3.4 RESEARCH OBJECTIVE FOUR

To develop criteria for the implementation of a strategic management plan for geotourism in South Africa.

1.3.5 RESEARCH OBJECTIVE FIVE

To draw conclusions from the research project results and make recommendations.

1.4 METHOD OF RESEARCH

The method of research consists of literature study, of analyses of geotourism practices oversees, of field visits and discussions with various stakeholders in the case study areas, of evaluation of theoretical and field observations, and the implementation of the findings.

1.4.1 LITERATURE STUDY

The literature study will consist of an Internet search as well as text, master's dissertations and doctorate theses, articles and reports regarding geodiversity, geoheritage, geosites, geoparks, geo-education, geotourism; their management, marketing and sustainability.

1.4.2 LIST OF THE MOST IMPORTANT GEOSITES IN SOUTH AFRICA

The most important geosites were classified as:

1. **Natural and geomorphological sites:**
   - Bushveld Complex area
   - Barberton Mountain Land (numerous geosites)
   - Kruger National Park (numerous geosites in the park)
   - The Witwatersrand area (numerous geosites between Germiston and Randfontein)
   - Pilanesberg Nature Reserve
   - uKhahlamba-Drakensberg Park (World Heritage Site)
   - Golden Gate National Park
   - Table Mountain National Park
   - Karoo Nature Reserve (near Graaf-Reinet)
   - Blyderivierspoort Nature Reserve
   - Richtersveld National Park
   - Natural and geomorphological sites.
2. **Caves**
   - Cango Caves
   - Cradle of Humankind World Heritage Site.
3. **Meteorite impact craters**
   - Vredefort Dome
   - Tswaing
   - Setlagole
   - Kalkkop (near Graaf-Reinet).
4. **Waterfalls**
   - Augrabies (in the Augrabies National Park).
5. **Palaeontological geosites**
   - West Coast National Park.
6. **Museums**
   - Transvaal Museum (mineralogical and geological collection)
   - Karoo fossils (in South African Museum and other museums)
   - Graaf-Reinet (geological museum).
7. **Mining heritage towns**
   - Pilgrim's Rest (mining history)
   - O'Okiep (mining heritage).
8. **Theme parks**
   - Gold Reef City (theme park)

- Platinum City, Rustenburg (under construction).

9. **Defunct gold mines**
   - Kromdraai Visitor Mine (in the Cradle of Humankind)
   - Blaauwbank Visitor Mine (near Magaliesburg).
10. **Defunct and working diamond mines** (Kimberley and Cullinan mines).

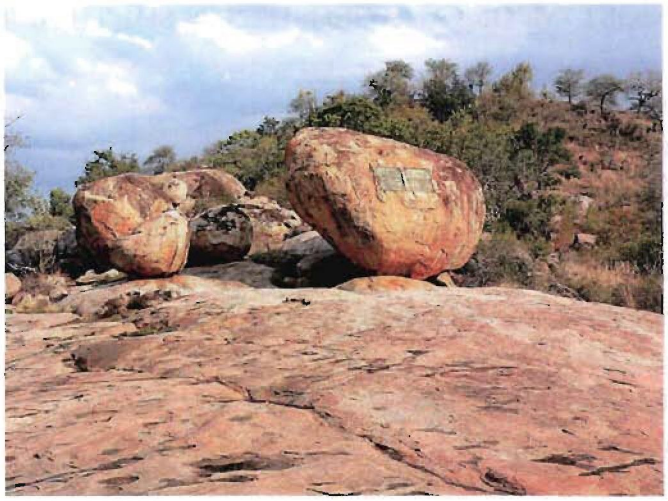


Figure 1.1: The Kruger Tablets are the well-known geosite along the Skukuza-Tshokwane road. It consist of granite boulders

Figure 1.2: Typical street scene in Pilgrim's Rest

1.4.3 FIELD WORK

Qualitative research during the case studies will be combined with fieldwork. It seeks in-depth, open ended responses from respondents. The aim will be to let the respondents speak freely about the specific subject, and so to obtain as wide a response as possible from them.

1.4.3.1 Data acquisition on field sites

In conducting the survey, the observational and the primary data will be obtained through actual fieldwork. Aspects that will be examined are the accessibility of the sites, their infrastructure and available facilities. The data will be recorded and mapped in detail, both by analogue and digital media, for subsequent analysis. Other tourist attractions in and around the specific geosites/areas will also be documented.

Figure 1.3: Entrance to Blaauwbank Visitor Mine, Magaliesburg

Figure 1.4: View to the east of the Big Hole, Kimberley from the cantilevered platform above the rim of the Big Hole

To gain an overview of geotourism in South Africa the following geosites/areas were selected:

- Kruger National Park, as an example of a National Park and also as this is South Africa's flagship National Park
- Pilgrim's Rest, as an example of mining history and because the whole town is

preserved today as a living museum

- Kromdraai Visitor Gold Mine in the Cradle of Humankind, as a small visitor mine because it difficult to obtain permission to visit one of the bigger working gold mines in the rest of the country
- Kimberley, as a well-established diamond tourism centre and because there is still small scale diamond mining. This site is also known internationally
- Cradle of Humankind World Heritage Site, as a palaeo-anthropological area and site of significance, and also because of two newly established tourism centres, Sterkfontein and Maropeng
- Geoscience Museum in the building of the Transvaal Museum, Pretoria, as an example of a museum collection.

Figure 1.5: Diamonds and Destiny Visitor Centre, Big Hole, Kimberley

1.4.3.2 Data acquisition from key role players and stakeholders

Qualitative research will be completed by means of structured questionnaires. These interviews will be undertaken with people like the administrative personnel and tourism-related persons/enterprises who are actively involved in managing a geosite/area. The people chosen to be interviewed will vary from site to site because of the business they conduct. The number of persons to be interviewed will further vary from place to place according to the type of geosite, for example:

1. Kruger National Park – the head of the park, media relations officer, marketing officer, head of scientific services, education officer
2. Pilgrim's Rest (mining history) – head of information/tourism office, as well as other tourism-related persons/enterprises
3. Kromdraai Visitor Gold Mine (a small visitor mine) – the manager and head of information/tourism office
4. Kimberley (a working diamond mine) – the mine manager/deputy mine manager, chief geologist and head of information/tourism office

5. Cradle of Humankind World Heritage Site (World Heritage Site) – the manager/deputy manager, head of information/tourism office, as well as other tourism-related persons/enterprises
6. Geoscience Museum, Pretoria – curator of museum, head of Information Services, Council for Geoscience, Silverton.

Figure 1.6: Fossil excavation site, Sterkfontein, Cradle of Humankind (COH)

Figure 1.7: Geological map that shows how Africa was part of Gondwanaland, Geoscience Museum, Pretoria

Questions will be asked about aspects relating to:

- **Place/product**:
  - Location
  - Background and history
  - Geodiversity and geological significance
  - Geoconservation
  - Other supplementary tourism products in the area.

- **Present status**:
  - Resource analyses
  - How is sustainable tourism being implemented?
  - The strengths, weaknesses, opportunities and threats.
- **Lessons learned**:
  - Main problem: Little/no knowledge of geotourism.
  - No policy/strategic geotourism development plan
  - Little planning, management and marketing
  - Constraints: little financial support from Government
  - Local municipalities, mining/financial companies
  - No geoconservation legislation.
- **Implementation of sustainability**:
  - Apply oversees research/experience in geotourism development
  - Enhancing/integrating economic, social and environmental principles
  - Better awareness and knowledge of geotourism
  - Sustainable geotourism strategy
  - Sustainable geotourism development
  - Stakeholder involvement
  - Networking
  - Management of egoists
  - Marketing.
- **What are benefits to the place**:
  - Conserving natural heritage
  - Create opportunities to work with other tourism sectors
  - Enhancing visitor experience
  - Geo-education
  - Interpretation
  - Successful tourism.
- **Future actions**:
  - Develop geosites and geoparks
  - Better interpretation facilities
  - Monitor progress and feedback
  - Awareness campaigns
  - Geo-excursions/seminars/lectures/TV programs
  - Attendance of overseas congresses.
- **Additional information**:
  - Any other data that might be considered to be necessary.

1.5 CLARIFICATION OF TERMS AND CONCEPTS

A number of new terms, concepts and definitions have evolved in the last few years. A short description of the most important ones will be given below.

1.5.1 GEOSITE

According to Verpaelst (2004) a geosite is a site of remarkable geological or scientific significance, and whose geological character meets several geosite selection criteria, that is, scientific value, geotourism appeal, educational value, historical significance, cultural, spiritual and social value, economic value, international significance, link with biodiversity, refuge for rare and threatened species, aesthetic quality, representativeness, stratigraphic landmark, palaeo-biodiversity, rare or unique character, precious character, vulnerability, quality or state of preservation, size and accessibility. Ten types of sites may become geosites or geoparks in Québec, Canada: caves and grottos, fossil sites, mineral sites, lithological sites, stratotypes or type sections, historical mine sites, geological or geomorphological landscapes, geosystems, geological environments that support an ecosystem and meteorite impacts.

1.5.2 GEOCONSERVATION

Preservation of a site has no real purpose while conservation implies the wise use of resources. Conservation is "*the preservation and protection of natural and historical resources for their intrinsic values, providing for their appreciation and recreational enjoyment by the public and safeguarding the options of future generation*" (http://www.teara.govt.nz/TheBush/Conservation/ConservationAHistory/1/en). This meaning has been formalised by an unambiguous definition in the New Zealand Conservation Act of 1987. Thus, the primary premise of conservation is the protection of heritage. Geological conservation (geoconservation) involves recognising, protecting and managing sites and landscapes identified as important for their fossils, minerals, rocks, processes or landforms in the United Kingdom (UK). (http://www.geoconservation.com/index.htm). Geoconservation or Earth heritage conservation is the broad term that refers to all aspects of conservation, the protection, management, interpretation and education relating to geological, geomorphological, landscape and soil sites (www.ukrigs.org.uk/). It is the endeavour of trying to conserve geodiversity and geoheritage (Sharples, 2002).

1.5.3 GEOTOURISM

A new form of tourism, known as geotourism, is being developed in Europe and North America since 1991. Geotourism includes geology, mineralogy, palaeontology, geosites, operating and defunct mines, caves, and collections of geological specimens in museums. It was established from Internet research that geotourism is built on the following pillars:

- Geological outcrops
- Geomorphology
- Caves
- Meteorite impact craters
- Current and old visitor mines
- Mining heritage towns

- Museums with geological exhibitions
- Theme parks with a geological connotation
- Geoscientific institutions for research.

Pforr and Megerle (2006:119) regard geotourism as a new, growing market segment with a prosperous feature, particularly so in the light of ever-increasing demand by tourists around the world for an ultimate nature experience. Dowling and Newsome (2006:6-8) state that the bulk of geotourism takes place in a natural environment. In geotourism, the attention is primarily on geologic phenomena, and the objective of the trip is to discover the Earth below our feet. Geotourism can thus be seen as an area of special interest tourism.

Geotourism was a new term coined to describe geological tourism in the mid-1990s. Early definitions were:

1. Hose (1995:17) proposed the first definition of geotourism as "*The provision of interpretive and service facilities to enable tourists to acquire knowledge and understanding of the geology and geomorphology of a site (including its contribution to the development of Earth sciences) beyond the level of mere appreciation*". It was later refined by Hose (2002:221-222) as "*The provision of interpretive facilities and services to promote value and societal benefit of geological and geomorphological sites and their materials, and to ensure their conservation, for the use of students, tourists and other recreationalists*"
2. Patzak (2000) believes that "*Geotourism might be best regarded as the provision of interpretative facilities and services to promote the value and societal benefit of geological and geomorphological sites and their materials, and to ensure their conservation, for the use of students, tourists and other casual recreationalists... geoconservation coupled with tourism provision are key elements of geotourism*
3. Dowling and Newsome (2006:3-7, 248) say that in their definition of geotourism "*The 'geo' part pertains to geology and geomorphology and the natural resources of landscape, landforms, fossil beds, rocks and minerals, with an emphasis on appreciating the processes that are creating and created such features*".

Dowling (2008:10) gives a new definition of geotourism as: "*Geotourism is sustainable tourism with a primary focus on experiencing the earth's geological features in such a way that fosters environmental and cultural understanding, appreciation and conservation, and is locally beneficial*".

In all the above-mentioned definitions the emphasis in on geology.

Stueve, Cooke and Drew (2002:1) mention a study by National Geographic Traveller in 2002 that has a different definition, being from a geographical point of view: "*tourism that sustains or enhances the geographical character of the place being visited – its environment, culture, aesthetics, heritage, and also the wellbeing of its residents*".

1.5.4 GEOPARK

A geopark (geological park) is defined by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in its *UNESCO Geoparks* International Network of Geoparks program as follows: "*A territory encompassing one or more sites of scientific importance, not only for geological reasons but also by virtue of its archaeological, ecological or cultural value*" (http://en.wikipedia.org/wiki/Geopark). UNESCO (2004) believes that a geopark "*is a territory with well-defined limits that has a large enough surface area for it to serve local economic development. It comprises a certain number of geological heritage sites (on any scale) or a mosaic of geological entities of special scientific importance, rarity or beauty, representative of an area and its geological history, events or processes. It may not solely be of geological significance but also of ecological, archaeological, historical or cultural value*" (www.igu-net.org/uk/news_and_events/IGU_Newsletter_2005_1.pdf).

Eder (2002:43) states that "*According to UNESCO's guidelines, geoparks shall be designed to become a tool for a better understanding of the global geological heritage and the wise use of the Earth's surface, by sensitising the broad public to a balanced relationship between humankind and the Earth. One central principle of the Geoparks concept is that sites must be capable of acting as a focus for economic activity, particularly through geotourism*". Geoparks represent a journey through the Earth's history. They highlight the geological features of a landscape with volcanic craters or thermal springs, rock formations embedded with animal and plant fossils, caves with human remains, and all bearing witness to a tumultuous past. Trails and geopark rangers would guide visitors round the main attractions (http://www.goethe.de/wis/fut/thm/geo/en1871799.htm). Thus, a geopark can be seen as an area that contains elements that may be particularly rare, scenic or geologically significant. These elements should be representative of the regional history, and of the events that have shaped it (Verpaelst, 2004).

In the future geoparks will be territories where the geological heritage of the Earth is safeguarded and sustainably managed. The main objectives emphasising the basis for enhancing the promotion of geological heritage through the Geoparks initiative are:

- To preserve geoheritage for future generations through conservation
- For educating and teaching the broad public about issues in geological landscapes and environmental matters, and also to provide research facilities for geoscience
- To ensure sustainable development through tourism
- **A territory with a great geoheritage**
  A more recent description of geoparks is on the website (www.petrifiedforest.gr/european_geoparks_the%20project.htm). A European geopark is a territory that includes a particular geological heritage and a sustainable territorial development strategy, supported by a European program to promote development. It must have clearly defined boundaries and sufficient surface area for

true territorial economic development. A geopark must comprise a certain number of geological sites of particular importance in terms of their scientific quality, rarity, aesthetic appeal or educational value. The majority of sites present on the territory of a geopark must be part of the geological heritage, but their interest may also be archaeological, ecological, historical or cultural

- **A protected territory with a clear management**
  The sites in a European geopark must be linked in a network and benefit from protection and management measures. No destruction or sale of geological objects from a European Geopark may be tolerated. The geopark must be managed by a clearly defined structure able to enforce protection, enhancement and sustainable development policies within its territory.

Eder and Patzak (2004:5) further stress the importance of the size and function of a geopark:

- In principle, a geopark will represent a terrain (a landscape), which is of sufficient size to generate economic activity – notably through tourism. Small outcrops, although scientifically important, will not normally display this potential
- A geopark would normally be of sufficient size to encompass a number of small sites (geosites) which, taken together, illustrate important geological features. Such a network in the context of a geopark would serve to stimulate economic development
- A geopark would comprise a number of geological-paleontological heritage sites of special scientific importance, rarity or beauty and so may not be solely of geological-paleontological significance. Archaeological, ecological, historical or cultural features could also represent, and should be regarded as important components of a geopark
- Terrains which are of geological-paleontological (and archaeological and biological) interest but which have no permanent population, or that are too remote to generate economic activity would also not normally be suitable as geoparks. The geopark concept is designed to relate people to their geological-paleontological and geomorphological environment
- A geopark has also to support education on the environment, training and development of scientific research in the various disciplines of the Earth Sciences, on the enhancement of the natural environment and on sustainable developmental policies.

Geoparks were created in Europe after the Digne Declaration of 1991. A critical difference between geosites and geoparks in Europe is in the intention of the latter to include socio-economic factors, and to encourage and recognise opportunities for rural regeneration within Europe.

1.5.5 SUSTAINABILITY

Sustainability is an economic, social, and ecological concept. It is intended to be a means of

configuring civilisation and human activity so that society and its members are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and ecosystems, and planning and acting for the ability to maintain these ideals indefinitely. Sustainability affects every level of organization, from the local neighbourhood to the entire globe (http://encyclopedia.thefreedictionary.com/Sustainability).

Dowling (2008:19) is of the opinion that that:

- Sustainability underpins ALL tourism development today including geotourism
- Sustainability means being economically viable, community beneficial, and environmentally responsible
- Sustainability is only achieved through appropriate planning and management.

South Africa's statutory definition of sustainability is contained in the National Management Environmental Act (No. 107 of 1998). It reflects the global consensus on equity now and in the future: *"Sustainability means the social, economical and environmental factors into planning, implementation and decision*-making *so as to ensures that development serves present and future generations*" (http://www.environment/gov.nssd_2005/draft_intergrated_strat/NSSD_Draft_for_Review_21Apr06.pdf). It was quoted from *"South Africa's National Strategy for Sustainable Development"*: p. 6.

Geotourism tends to implement sustainability principles by building the geographical character to create tourism with an emphasis on the distinctiveness of a locale. This can and should benefit the resident and the visitor to the locale. Geotourism could be used as a brand of 'green' tourism as opposed to a tourism that inflicts damage on fragile environments.

1.5.6 SUSTAINABLE DEVELOPMENT

Sustainable development was first mentioned in the Brundland Report, also known as *"Our Common Future"* (World Commission on Environment and Development, 1987). It was defined as a *"development that meets the needs of the present without compromising the ability of future generations to meet its own needs"*.

The principles of sustainable tourism were defined by the World Tourism Organisation (WTO) as early as 1988. Sustainable tourism was *"envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems"* Sustainability principles should apply to all types of tourism activities, operations, establishments and projects, including conventional and alternative forms. Sustainability can only be attained through sustainable financing (http://www.world-tourism.org/sustainable/IYE/WTO-UNEP-Concept-Paper.htm).

The push for sustainable development, heralded at the Rio Earth Summit in 1992 advanced the agenda for government and industries to look seriously at sustainable practices. The Rio Declaration articulated the main principles for sustainable development in the 21st century. The first step to achieving a balance between sustainable development and economic growth for travel and tourism was taken in 1996. The World Travel & Tourism Council (WTTC), the World Tourism Organisation (WTO/OMT) and the Earth Council, together launched *Agenda 21 for the Travel & Tourism Industry: Towards Environmentally Sustainable Development* – a sectoral action plan for sustainable develop development based on the outcome of the Rio Earth Summit in 1992.

1.5.7 SUSTAINABLE TOURISM AND GEOTOURISM

After the World Conference on 'Sustainable Tourism', convened in Lanzarote, Spain, during 1995, the "*Charter for Sustainable Tourism*" was prepared. It stated "*Tourism development shall be based on criteria of sustainability, which means that it must be ecologically bearable in the long-term, economically viable, as well as ethically and socially equitable for the local communities*". Sustainability in Travel and Tourism means ensuring markets in which the industry can thrive economically and so generate jobs, creating frameworks for education, training and social development, while protecting and enhancing the cultural and natural environment. A balance must be sought between these three pillars of sustainable development. This balance can be achieved with strong legal support, investment and regulatory frameworks (http://www.wttc.org/promote/pdf/Sustainability_of_EU_Tourism.pdf).

Pforr and Megerle (2006: 118, 120-121) are of the opinion that geotourism embraces the identification of geo-objects, landscape marketing and interpretation of the geoheritage of a region in a sustainable manner. Collaboration, co-ordination, effective communication and transfer of know-how are important mechanisms to achieve sustainability outcomes. Therefore geotourism should be consistent with the principles of sustainable development, balancing economic, ecological and social aspects as an integrated whole. Lastly, geotourism should be viewed as part of a holistic management approach to the broad field of geological and landscape history, including its interconnectedness with fauna and flora, the cultivated landscape, and present use. Pforr *et al.* (2006: 121) reckon that "*Sustainability and environmental education are seen as integral parts*".

1.5.8 STRATEGIC PLAN

Bryson (2004:ix) and Bryson and Alston (2005:3) state "*Strategic planning is a set of concepts, procedures, and tools designed to assist leaders and managers with these tasks. Indeed, strategic planning may be defined as a disciplined effort to produce fundamental decisions and actions that shape and guide what an organization (or other entity) is, what it does, and why it does it*". Further, these authors believe that:

- Strategic planning is a way of thinking, acting and learning

- It usually takes a comprehensive view by focusing on the 'big picture', but also leads to specific, targeted actions
- It is often visionary and usually proactive rather than reactive
- It is flexible and practical
- It is a guide for decision making and resource allocation.

1.6 OUTLINE OF CHAPTERS

In **Chapter One**, an overview of the proposed study and the research question was given and the goals and objectives were established. New definitions and concepts were also introduced.

Chapter Two will explain sustainability, as tourism like other industries has three interconnected aspects: environmental, socio-cultural, and economic. Discussions will focus on the permanence of sustainability and sustainable development. The optimum use of resources, including biological diversity, minimisation of ecological, cultural and social impacts, and maximisation of benefits to conservation and local communities will be examined. The concept of sustainability and sustainable development will be discussed in detail. The aims, areas and benefits of Local Agenda 21 (LA21), as adopted at the United Nations Conference on Environment and Development in 1992 (the Rio Earth Summit), will be demonstrated. The relevance of LA21 with regard to sustainability and how it could be applied will be discussed. Sustainable geotourism, and how this concept has been expanded will be discussed. A detailed description of 10 "*Steps to sustainable tourism*", a concept developed by Department of the Environment and Heritage of Australia 2004, will be examined. Guiding principles and approaches of sustainable tourism, and how to actually achieve this, are very important aspects to be examined. A last point will be the discussion of UNEP guidelines for the implementation of sustainable tourism.

Chapter Three will further explain and describe the components of geotourism. Concepts such as geosites, geodiversity, geoheritage, geotopes, geosites, World Heritage Sites, and geoparks will be developed. A short overview of some of South Africa's places of geological interest (geosites) will be given and a comparison of overseas geosites will follow.

Chapter Four will describe the development of geotourism, site and visitor management and will interrogate how the various approaches and tools for the management of geotourism can be applied. All the management practices that can be used in geotourism will be examined. The development of a competitive and successful geotourism destination will then be described. In developing the principle of conservation of geoheritage for a sustainable and integrated environment, case studies from Finland, the US and Canada will be discussed. Examples will be given of how geotourism products are utilised in mining museums, historical mining towns and theme parks overseas and in South Africa. The role of interpretation directed at visitors, geoscience education activities, geo-exhibitions and geo-

events will be discussed.

In **Chapter Five,** the sustainable tourism management plan of Gebhard, Meyer and Roth (2007(b):1-66) as a methodology guide for biosphere reserves (BR) in Eastern Europe will be used as a basis to develop a geotourism management plan. The conceptual framework for a strategic management plan of Schutte (2007(b)), which was amended in 2008 by the author, will be used for the development of a strategic management plan for geotourism in South Africa. The seven inter-related steps are: 1) Strategic planning, 2) The tourism management planning process, 3) Vision and mission, 4) Situation and resource analysis, 5) Strategy formulation, 6) Implementation, and 7) Evaluation and monitoring. The Heritage Legislation Acts (No's 11, 25 and 49 of 1999) will also be evaluated with regard to geoconservation.

In **Chapter Six,** the results of the survey will be given in form of six case studies.

The aim of **Chapter Seven** is to formulate and establish guidelines for the sustainable development of geotourism in South Africa. Certain conclusions will be drawn and recommendations will be made with the intention of achieving sustainable geotourism.

An appendix of various tourism and geotourism declarations, together with related documents, will be given at the end.

CHAPTER 2
THE PILLARS OF SUSTAINABILITY

2.1 INTRODUCTION

The goal of the chapter is to show how the principle of "sustainability" evolved, to describe what the different aspects of it are, and how sustainability can be implemented.

The United Nations Conference on Environment and Development (UNCED), also known as the Rio Summit, was held at Rio de Janeiro from 3-14 June, 1992. Sustainability was discussed for the first time as the management of all resources in such a way that economic, social and aesthetic needs can be fulfilled. A comprehensive program of action, Agenda 21, was adopted and was to be implemented by all governments. Sustainability for tourism, as for other industries, has three interconnected aspects: environmental, socio-cultural, and economic. The concept of sustainability and sustainable development will be discussed in detail. The aims, areas and benefits of Agenda 21, that was adopted at the United Nations Conference on Environment and Development in 1992 (the Rio Earth Summit), will be demonstrated.

The relevance of Local Agenda 21 (LA 21) to a country with regard to sustainability and how the ideals could be applied will be discussed. Sustainability is also relevant in tourism because tourism must be economically viable, must not destroy the resources and environment it depends on , and must consider the social fabric of the host community.

After the 1995 World Conference on "Sustainable Tourism" Lanzarote, Spain, the "*Charter for Sustainable Tourism*" was prepared. It stated, *inter alia,* that: "*Tourism development shall be based on criteria of sustainability, which means that it must be ecologically bearable in the long-term, economically viable, as well as ethically and socially equitable for the local communities*". This will be examined and how other authors expanded on the definition will also be interrogated.

A detailed description of 10 "*Steps to sustainable tourism*", as developed by Department of the Environment and Heritage of Australian 2004, will be examined. These guiding principles and approaches of sustainable tourism, and how to achieve it, are very important aspects to be reviewed.

2.2 ASPECTS OF SUSTAINABILITY

Sustainability is "... *an economic, social, and ecological concept. It is intended to be a means of configuring civilisation and human activity so that society and its members are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and planning and acting for the ability to maintain these ideals indefinitely.*

Sustainability affects every level of organisation, from the local neighbourhood to the entire globe". Put in simpler terms, sustainability is providing for the best for people and the environment both now and in the indefinite future. According to the 1987 Brundtland Report, sustainability is "*meeting the needs of the present generation without compromising the ability of future generations to meet their needs.*" It is very much like the seventh generation philosophy of the Native American Iroquois Confederacy mandating that chiefs always consider the effects of their actions on their descendants down through the seventh generation of the future. The original term was "*sustainable development*", a term adopted by the Agenda 21 program of the United Nations. Some people now object to the term "*sustainable development*" as an umbrella term as it implies continued development, and so the objectors insist that it should be reserved only for developmental activities. Sustainability, then, is nowadays used as an umbrella term for all of human activity.

Types of sustainability

- **Institutional sustainability**: that is, can the strengthened institutional structure continue to deliver the results of the technical cooperation to the ultimate end-users? The results may not be sustainable if, for example, the planning unit strengthened by the technical cooperation ceases to have access to top-management, or is not provided with adequate resources for the effective performance, after the technical cooperation terminates
- **Economical and financial sustainability**: that is, can the results of the technical cooperation continue to yield an economic benefit after the technical cooperation is withdrawn? For example, the benefits from the introduction of new crops may not be sustained if the constraints to marketing the crops are not resolved. Similarly, economic (as distinct from financial) sustainability may be at risk, if the end-users continue to depend on heavily-subsidised activities and inputs
- **Ecological sustainability**: that is, are the benefits to be generated by the technical cooperation likely to lead to a deterioration in the physical environment (thus indirectly contributing to a fall in production) or well-being of the groups targeted, and those of their society? (http://www.encyclopedia.thefreedictionary.com/Sustainability). The downside of geotourism is that it may itself progressively destroy the very values that appeal to the ecotourist – especially in fragile environments.

According to Lee and O'Neil (2004:2), sustainability is: "*A synergistic process whereby environmental and economic and quality of life considerations are effectively balanced in project planning, design, construction, operation and maintenance in meeting the needs of the present without compromising the quality of life for future generations*". The concept is diagrammed in Figure 2.1.

The concept of sustainability in the figure above shows three circles that intersect with each other. The three components, 1) environment, 2) economic, and 3) social well-being must be in equilibrium, and this will imply that sustainability is being achieved.

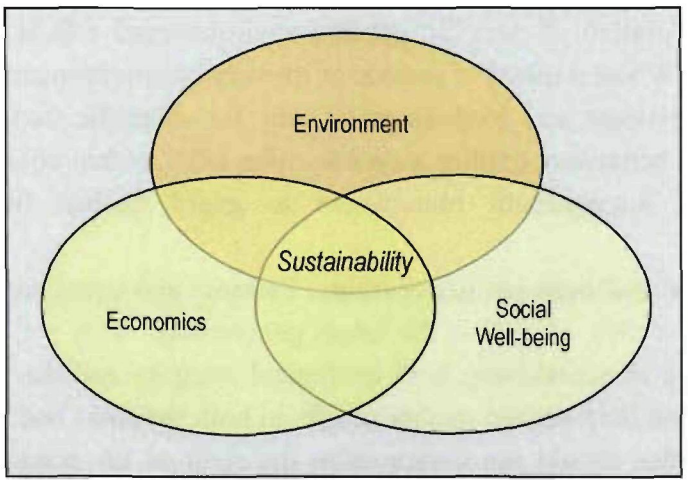


Figure 2.1: The concept of sustainability (Lee and O'Neil: 2004 as adapted by the researcher: 2008) (www.epa.gov/gmpo/lmrsbc/pdf/pres3_MRBA_framework.pdf)

According to Cotter and Hannan (1999:171-172), some of the key principles of sustainability are:

- **Integration**: The effective integration of environmental, social and economic considerations in decision-making. An integrated approach means that decision making processes at all levels should include consideration of a broad range of environmental, social and economic effects. The separation of functions within councils can result in a decision-maker in one area overlooking impacts that would be readily apparent to people in other areas. Integration involves developing organisational processes that allow such impacts to be easily seen and considered across council departments before decision making occurs. Integration also suggests the effectiveness of working more closely and cooperatively with other organisations, including neighbouring councils, other levels of government and, most significantly, all sectors of the local community
- **Community involvement**: Recognition that sustainability cannot be achieved, nor significant progress made toward it, without the support and involvement of the whole community. A cooperative council/community approach, from the early stages through to implementation of a project, allows for resource sharing, and fosters a supportive and active community that perceives itself as owning both the problems and the solutions. The effectiveness of this approach is already recognised in many local authority programs such as those of waste minimisation or greenhouse-gas emission reduction. Community involvement is also essential to monitoring the state of the environment
- **Precautionary behaviour**: Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation, such as taking measures to reduce greenhouse gas emissions. Precautionary behaviour requires the

careful consideration of possible adverse environmental effects of planning, policy and practice. Where a threat of serious or irreversible environmental damage exists, it would be imprudent and inadequate to wait for scientific certainty before acting. Precautionary behaviour implies a conservation ethic within councils' environmental planning and management frameworks to guard against future environmental degradation

- **Equity within and between generations**: Fairness and equal access to opportunities both in our lifetimes, as well as for future generations. This notion of equity implies the importance of maintaining both ecological integrity and the Earth's resources in order to provide for a certain quality of life, in both the short and long term. As such, present activities should not compromise the right of the present generation, or of future generations, to healthy and dynamic environments nor must they foreclose on opportunities. This approach involves asking, "I*s the current quality of life obtained at the expense of others, or of generations to come*?"
- **Continual improvement**: The declining environmental situation means there is an imperative to take immediate action to become more sustainable and to make continual improvement. Change will not occur all at once, however, it is important to make continual improvements, making the most of advances in technology and scientific understanding about what is sustainable, and of increases in community awareness of sustainability issues
- **Ecological integrity**: This requires the protection of biological diversity and maintenance of essential ecological processes and life-support systems. Recognising the interdependence of all parts of the natural environment, that nothing is separate from it, the protection of the natural environment in its many diverse forms is essential for there is a heavy dependence on it. For example, each region has a unique climate, geomorphology, biota and habitat qualities and patterns that determine the issues and responses to maintaining ecological integrity. Therefore, urban, rural and coastal councils may have significantly different perspectives in preserving ecological integrity in their own region. These could include maintenance and enhancement of vegetation, waterways, coasts and wildlife corridors as well as soil, water and air quality.

In the Australian context, Evans (2000) states that sustainability is seen to involve five elemental concepts, namely:

1. The integration of environmental and developmental aspirations at all levels of decision-making.
2. Intragenerational and intergenerational equity. This last is the fundamental ethical basis of sustainability.
3. Application of the precautionary principle or approach. The precautionary approach, as expressed in Principle 15 of the *Rio Declaration*, requires that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

4. The maintenance of biological diversity and biological integrity.
5. The internalisation of environmental costs. This requires new economic attitudes and mechanisms for measuring and evaluating the costs of maintaining balances of environmental inputs, outputs and effects at sustainable levels.

Each of the principles discussed above is clearly and directly referable to the conservation of natural heritage. Evans (2000) concludes that "... *to the extent that any human right to a whole environment carries with it a human duty to care for the environment, together with a parallel duty to care for nature and culture owed to present and future generations, sustainability principles and the stewardship ethic are tending to define such a human duty*".

Crawford, Young and Miall (2002:1-4) describe the sustainability tree as a coherent conceptual framework for sustainability, by integrating the social, environmental and economic dimensions in a systems approach. Various stakeholders can use this tool when linking with others. This practical and useful approach is widely understood by all stakeholders, who can then appreciate how their particular interests and efforts link in with those of others. It is based on Australian and international principles of Ecologically Sustainable Development (ESD). This starting point in generating consensus amongst internal and external stakeholders allows everyone to gain an appreciation of the different dimensions and components of the sustainability agenda. The 'roots' of the tree are science, ethics and values, and then progressing up the 'trunk' are the first order principles of ESD. The three main 'branches' are the triple bottom line that leads into the more detailed areas of strategies, plans, management systems and indicators. At the top of the tree, the 'leaves' represent the actions and interests of individual stakeholders.

The sustainability tree greatly assists in the communication and education of complex sustainability, ESD and Local Agenda 21 (LA 21) issues to diverse stakeholder groups. The metaphorical tree was constructed using differing hierarchical levels to represent the various dimensions of the sustainability agenda, from the core scientific principles through to individual actions. The process allows a 'common language' to be used by all stakeholders which then assists an understanding of the change management processes necessary to implement ESD. By mapping existing personal and organisational activities on to the sustainability tree, a gap analysis may be undertaken which can then inform the development of a coherent sustainability/LA 21 strategy. Linkages are clearly identifiable. The sustainability tree is scalable and adaptable to the differing needs of organisations. The EcoSteps sustainability tree is shown as Figure 2.2.

Crawford *et al.* (2002:1-4) states that organisations which start moving down the path of sustainability are undertaking a task that is at once both simple and complex. It requires the integration of sustainability concepts and systems into the frame of organisational and operational reality. It is a simple task because sustainability concepts and principles are becoming well known. It is also a complex task because it often requires re-thinking long held assumptions and often significantly re-designing systems, products and services.

Working out the optimal path towards ESD and sustainability is not easy for any organisation and many practical, organisational, cultural and political issues must be addressed along the way. Ultimately, the rewards are numerous including greater community engagement, greater operational efficiency, quicker and more accurate responses to community needs, more strategic focus on the future, appreciation of future generations' needs, for example.

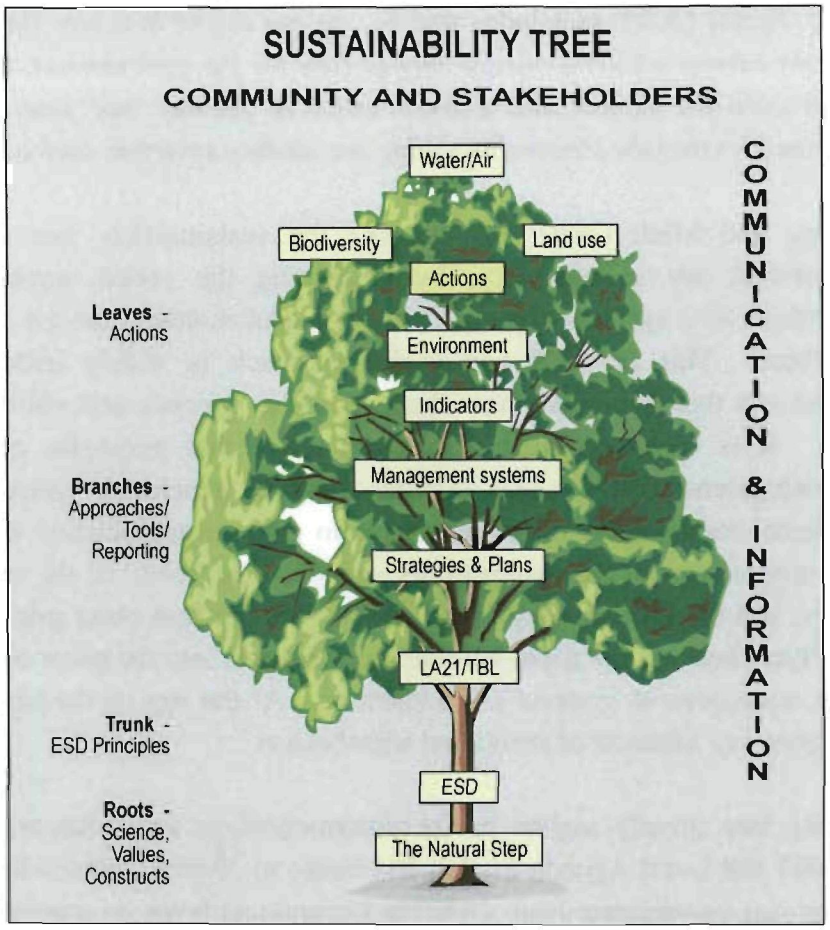


Figure 2.2: The EcoSteps sustainability tree (Crawford, Young and Miall, 2002:1-4)

In the agenda of the Sustainable Tourism Summit: Rhode Island 2006, (15 November 2006), sustainability was explained in the statement: "*Though the environment is a first priority, sustainability is not just about the natural environment! Sustainability and sustainable development is a systemic concept that embraces a variety of diverse and synergistic elements from the human and non-human environment. It embodies the parallel care of a diverse range of economic, social, ecological, cultural, community knowledge and infrastructure capabilities and assets that, through their synergy enhance the actions that regenerate and restore not only the ecology of place, but also the community of place*" (http://www.sustainabletourismlab.com/summitagenda.pdf).

In summation, McKercher (2003:3, 6-8) is of the opinion that, in principle, most people

support sustainability. However, in practice, sustainability has been difficult to achieve because it is so broad and complex. Indeed, two different ideologies have emerged:

- The first, arguing for economic sustainability as the dominant characteristic (that is, the *status quo*)
- and the second, arguing for ecological sustainability as the dominant feature.

If sustainability is considered in the context of a strategy, both economic and ecological considerations are needed and true sustainability cannot exist with addressing both concerns.

As a guiding strategy, this seems to make sense, particularly given that:

- The absolute tourism resource base is limited and will come under increasing pressure from modernization and from continued economic development
- More and more people are travelling each year, meaning:
  - Usage pressures will increase
  - The number of first time tourists who need to be educated in appropriate behaviour will grow.
- Consumers are becoming more sophisticated and worldly, and so are increasingly making ethical choices about their tourism purchases
- Ecotourism and cultural tourism represent low-cost product development opportunities for destinations
- Ecological and cultural assets are one of the few truly unique features of countries and regions, giving them a competitive advantage.

Few, if any tourism, products are truly sustainable and fewer, if any, destinations can be called sustainable. Tourism on a global scale seems now to be moving farther from sustainability than was ever the case before. The issue is particularly problematic in the developing world, and in those economies in transition from a demand economy to a market economy. Indeed, many newly emerging destinations promote sustainability but, adopt the same old practices with the same adverse effects that have been troubling tourism for decades. There are many success and many failures.

Some of the reasons why is there such a gap between ideology and practice are:

Economic

- Improving the economic well-being of residents through economic growth and job creation is often a higher national priority than is conservation
- Tourism, especially large scale mass tourism, is pursued because of the foreign direct investment and the foreign exchange it generates
- Tourism is a means to attract foreign aid for large-scale infrastructure development, without ongoing funds for maintenance.

Structural

- A lack of a strong, national, sustainable, development framework under which tourism can fit

- A weak institutional framework with inadequate control mechanisms
- A failure to plan comprehensively for large flows of tourists to remote areas in relation to local resources, electricity and water supply
- Tourism is the only option for economic development, even though the area lacks assets required to be a viable destination.

Tourism

- The environment and local cultures represent the easiest, low-cost and fastest way to develop tourism attractions and so they find themselves exploited
- A lack of understanding about what tourism is and how it works
- A lack of commitment by tourism operators to safeguard the local environment and host cultures
- The misguided belief that small is always good.

Social / Community

- Communities pursue tourism without understanding fully its implications
- Tourism can be imposed on local communities by the dominant ethnic, cultural, or business group, or by political leaders.

Many of the structural issues are not under the direct control or influence of government tourism officials and members of the tourism industry. Academics, government officials, community leaders and the tourism industry can take an active role in addressing most of the remaining issues. A vision, commitment and a shared goal is necessary to achieve true sustainability. Government should take the lead, but in doing so, it must work in partnership with other levels of government, host communities and the tourism industry. This leadership will involve:

- Establishing national tourism objectives that reflect the unique character, opportunities and constraints in a country
- Developing a shared vision of what type of tourism is wanted and how to achieve that goal
- Establishing a policy framework to achieve those objectives
- Developing, in collaboration with others, guidelines, policies and practices for both new tourism projects and for the management of ongoing tourism activities
- Working with educational institutions and other organizations in education, training and development programs
- Providing a longer-term commitment to move from the current situation to a more attractive future position.

Therefore, adopting a strategic outlook and answering these six questions can set a country on the path to sustainable tourism:

1. What products should be offered?
    - High quality, ethical and sustainable that benefit local communities
2. What products should not be offered?
    - Low quality, mass and exploitative products that do not benefit local

communities

3. Which markets should be targeted?
   - Upmarket, affluent, educated, aware tourists. Target exclusivity and quality
4. Which markets should be avoided?
   - High volume, low yield markets
5. Which other destinations should be seen as competitors?
   - Other quality special interest tourism destinations
6. Which other destinations should not be seen as competitors?
   - Mass market, low quality destinations.

Weaver (2006:vii) summed up sustainability as follows: "*Sustainable principles must be applied to all human activities, and tourism, in all its forms, must be included in the general sustainable development of territories and nations*".

2.2.1 SUSTAINABLE DEVELOPMENT

The United Nations Conference on the Human Environment was first held at Stockholm, Sweden, in June 1972, and marked the emergence of international environmental law. The Declaration on the Human Environment (also known as the Stockholm Declaration) set out the principles for various international environmental issues, including human rights, natural resource management, pollution prevention and the relationship between the environment and development. The conference also led to the creation of the United Nations Environment Program. The World Commission on Environment and Development (WCED, also known as the Brundtland Commission, published a report: "*Our Common Future*", in 1987. It was written by Dr. Gro Harlem Brundtland, the pioneer of sustainable development, and it highlighted the idea of sustainable development (c.f. 2.2).

Cherqui (2005:5) believes that the evolution of the concept and the implication for the actors (Scientific and NGO's, governments and nations, enterprises, and consumers) was proposed by Brodhag (2004:8). The important dates of sustainable development are summarised in Figure 2.3. The figure shows the evolution of this concept over time. It also clearly shows the actions of the different actors during the last thirty years. It may also be seen that the concept of sustainable development gave birth to new terms such as "*societal responsibility*" and "*economic, social and environmental performance*". The linkage between environment and development was globally recognised in 1980 when the International Union for the Conservation of Nature (IUCN) published the "*World Conservation Strategy*" and used the term "*sustainable development*". This concept came into general usage following the publication of the 1987 Brundtland Report. Regrettably, the definition is not operational and has created much antagonism and cognitive dissonance. This arises because sustainability is often taken to refer to processes that can be maintained indefinitely. This is not the case for economic growth and development, just as the world's exponential population growth is unsustainable. Development is thus *unsustainable* in this sense. If it were to mean *development of sustainability* rather than *sustainability of development*, there would be no

contradiction, but sustainability is clearly being used as an adjective here. The issue is resolved when it is realised that 'sustainable' has a different meaning in this context, being "*...that which meets the needs of the present without compromising the ability to meet the needs of the future*".

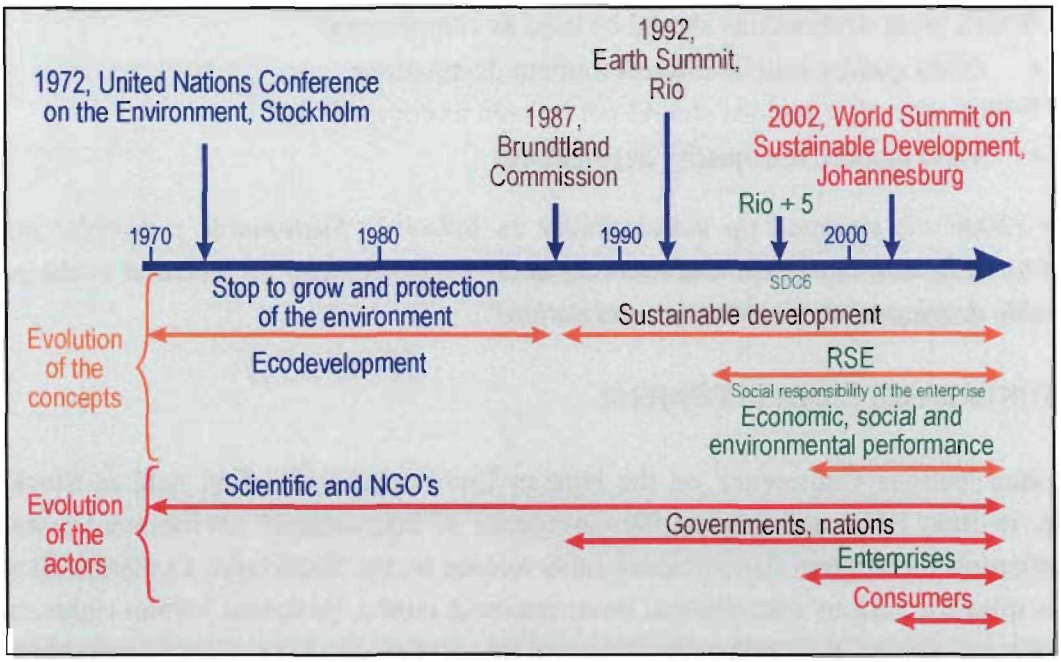


Figure 2.3: Important dates of sustainable development (Brodhag 2004:8). The text was translated from French by the author (2008)

Note: SDC6 is the *"Sustainable Development Commission 6"* which was held in Argentina during 1997.

The field of sustainable development consists of three constituent parts:

1. Environmental sustainability
2. Economic sustainability; and
3. Social-political sustainability.

Scope and definitions

Sustainable development policies encompass three general policy areas: economic sustainability, environmental sustainability and social sustainability. Several United Nations texts, and the 2005 World Summit Outcome Document, refer to the *"interdependent and mutually reinforcing pillars"* of sustainable development as being economic development, social development, and environmental protection.

In the late 1980's, the concept "*sustainable development*" was introduced into the environmental debate. It is an expression of the interdependence between the three systems identified as basic to development: the economic system, the social system, and the

biophysical system. The last element can perhaps better be described as 'the environment'. This interdependence is illustrated by Figure 2.4. The economy exists entirely within society, because all parts of the human economy require interaction among people. Society in turn, exists entirely within the environmental system. Although human activity is re-shaping the environment at an ever-increasing rate, society and its economic systems can never exist independently of the environment. The most common way of illustrating sustainable development is the "*three spheres/pillars*" diagram (Figure 2.4). True sustainable development is then development that meets the "*triple bottom line*" where all three systems interact on an equal basis that is shown as sustainable. This model can be useful in showing where the interrelationships exist; for example, the interrelated activities that lie within the environmental and socio-economic domains (http://www.sustainablesettlement.co.za/issues/susdev.html).

The spheres of sustainable development are shown in Figure 2.4.

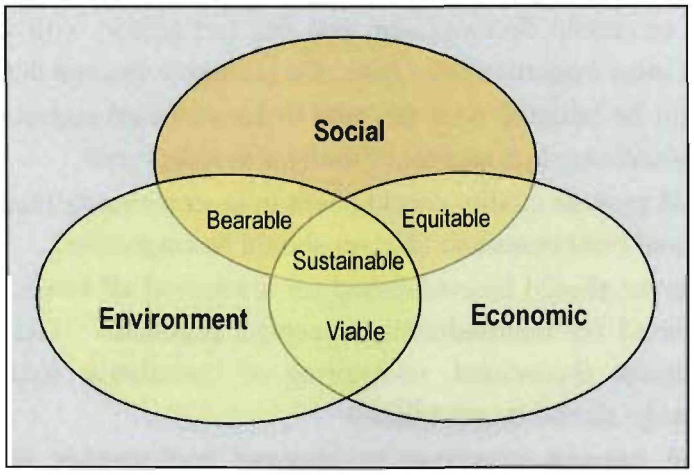


Figure 2.4: The spheres of sustainable development: at the confluence of three occupations (www.en.wikipedia.org/wiki/Sustainable_development)

Burr (2002:27) states that sustainability is an 'ideal' balance of capacities in all three systems and that will:

- Maximise goal achievement across the three systems at one and the same time through an adaptive process of trade-offs',
  - For the more the three systems and goals converge, the more sustainable development becomes.

According to the Brundtland report (1997, as cited by Ham and Weiler, 2002:36): "*...sustainable development is that economic growth and environmental conservation are not only compatible, but are necessary partners. The one cannot exist without the other*". Sustainable tourism that is developed and maintained in such a manner, and on such a scale, remains economically viable over an indefinite period and does not undermine the physical and human environment that sustains and nurtures it. It needs to be economic sustainable

because if it is not profitable, then it is open to argument whether it is environmentally sustainable. Tourism that is unprofitable and unviable will simply cease to exist.

Ritchie and Crouch (2003:167) stress that sustainable development must take place in a broader surrounding social, economic, environmental, cultural, legal and political system that provides the larger mega-policy framework that tourism must acknowledge, and must function within. When considering developing tourism, then specific strategies must be adopted in order to implement the policies defined by the destination vision. It is useful to specify a range of tourism objectives that operationalise the steps required to realise the destination vision.

Jamieson and Noble (2000) hold the opinion that increasing evidence shows an integrated approach to tourism planning and management is now required to achieve sustainable tourism. Recently, there has been a growing recognition of the importance of combining the needs of traditional urban management (including, but not limited to, transportation, land use planning, marketing, economic development, and fire and safety) with the need to plan for tourism. Some of the most important principles of sustainable tourism development include:

- Tourism should be initiated with the help of broad-based community-inputs and the community should maintain control of tourism development
- Tourism should provide quality employment to its community residents, and a linkage between the local businesses and tourism should be established
- A code of practice should be established for tourism at all levels - national, regional, and local - based on internationally accepted standards. Guidelines for tourism operations, impact assessment, monitoring of cumulative impacts, and limits to acceptable change should be established
- Education and training programs to improve and manage heritage and natural resources should be established.

Sharpley (2005:268-270) is of the opinion that sustainable tourism development seeks to optimise the benefits of tourism to tourists (their experiences), the industry (profits) and local people (their socio-economic development) while minimising the impacts of tourism development on the environment. The aims and objectives of tourism development are:

- That conservation and sustainable use of tourism resources are seen as crucial. Therefore, tourism should be planned and managed with environmental limits and with due regard to the long-term appropriate use of natural and human resources
- That tourism planning, development and operation should be integrated into national and local development strategies. In particular, consideration should be given to different types of tourism development and the way they link with existing land and resource uses, and with socio-cultural factors
- That tourism should support a wide range of local economic activities, taking environmental costs and benefits into account, but that it should not be permitted to become an activity which dominates the economic base of an area

- That local communities should be encouraged and expected to participate in the planning, development and control of tourism with the support of the government and industry
- That all organisations and individual should respect the culture, the economy, the way of life, the environment and political structures in the destination area
- That all stakeholders in tourism should be educated of the need to develop more sustainable forms of tourism. This includes staff training and raising awareness, through education and marketing tourism responsibly, of sustainability issues amongst host communities and tourists themselves
- That research should be undertaken throughout all stage of tourism development and operation to monitor impacts, to solve problems and to allow local people and others to respond to changes and to take advantages of opportunities
- That all agencies, organisations, businesses and individuals should co-operate and work together to avoid potential conflict, and so optimise the benefits to all involved in the development and management of tourism.

The Universal Declaration on Cultural Diversity of UNESCO (2001:10-16) elaborates further this concept by stating that "*...cultural diversity is as necessary for humankind as biodiversity is for nature*"; for it becomes one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence. In this vision, cultural diversity is the fourth policy area of sustainable development (http://www.unesdoc.unesco.org/images/0012/001271/127160m.pdf).

Economic Sustainability: Agenda 21 clearly identified information, integration and participation as key building blocks to help countries achieve development by recognising these interdependent pillars. It emphasises that in sustainable development, everyone is a user and provider of information. It also stresses the need to change from the old sector-centered ways of doing business to new approaches that involve cross-sectoral co-ordination and the integration of environmental and social concerns into all development processes. Furthermore, Agenda 21 emphasises that broad public participation in decision making is a fundamental prerequisite for achieving sustainable development (http://en.wikipedia.org/wiki/UNESCO).

At Kennecott Utah Copper, USA, sustainable development is integral to the success as a fully integrated producer of copper cathode, molybdenum, gold, and silver, and to the social and financial investment the stakeholders and surrounding communities made in them. By anchoring the business strategy and daily practices in alignment with the concept of sustainable development, they are able to strengthen their operations and products and so to provide lasting benefits for their employees and stakeholders. The benefits include lower risks, improved efficiency and a superior reputation. Their mission, "*to maximize the long-term value of the resources under our stewardship*", is supported by focused efforts in all

four pillars of sustainable development: economic prosperity, social well-being, environmental stewardship, and governance, which includes the management systems and processes that enable them to accomplish their goals in each of these areas. The four pillars of sustainable development, economic prosperity, social well-being, environmental stewardship and governance are shown in Figure 2.5.

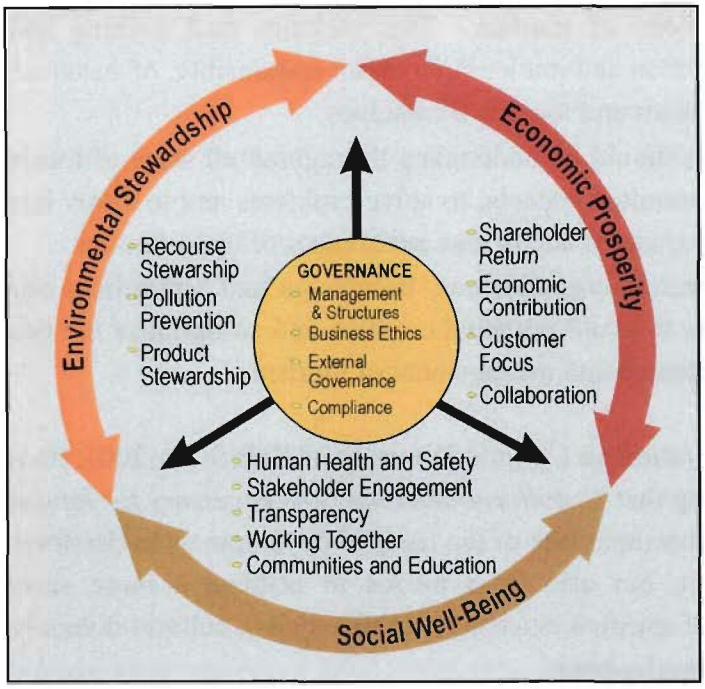


Figure 2.5: The four pillars of sustainable development: economic prosperity, social well-being, environmental stewardship and governance (Kennecott Utah Copper, USA, (http://www.kennecott.com/?id=MjAwMDA3Mg)

The National Strategy for Sustainable Development (NSSD, 2006:2), states that social, economic and environmental sustainability do not emerge spontaneously. "*These conditions only emerge through deliberate strategic and operational interventions by government to achieve longer term durability of its policy programmes aimed at reshaping society in a more desired form. This can only be achieved through systematic attempts by government to achieve good governance outcomes that integrate the desired longer-term social, economic and environmental outcomes. These four integrated dimensions of sustainability must be clarified before one can develop a strategy to achieve sustainable governance*" (http://www.environment.gov.za/nssd_2005/draft_chapters/NSSD_Chapter_4_Framework_forM_E.pdfr_M_E.pdf). The NSSD provides an integrated framework for it views social, economic and ecosystem factors as being embedded within each other, and underpinned by systems of governance. Therefore, it identifies key areas for intervention based on an integrated analysis of trends in the four areas. Through this approach, the NSSD seeks to build on the definition of sustainable development by highlighting the importance of institutions and systems of governance in implementing the concept and in oversight activities. This approach is modeled in Figure 2.6.

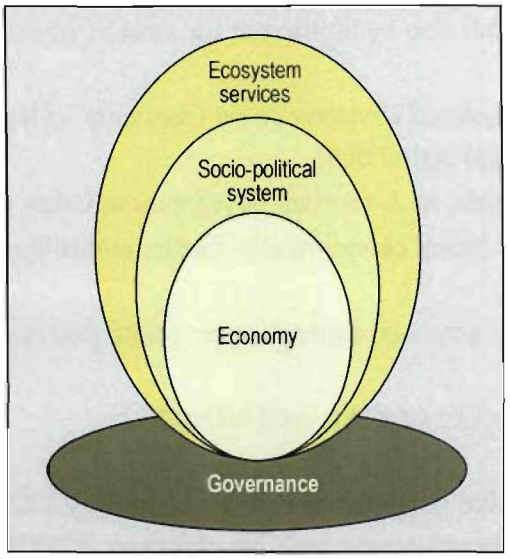


Figure 2.6: Social, economic and ecosystem factors embedded within each other and underpinned by systems of governance (http://www.enviropaedia.com/topic/default.php?topic_id=252)

Sharpley (2005:179-180, 184-187) believes that the primary objective of many 'sustainable' rural policies is to minimise the negative consequences of tourism development and activity through appropriate resource planning and management. Thus, sustainable tourism is equated with sustainable resource use. The contribution of clusters/networks becomes more important as a means of generating regional competiveness and positive economies for rural tourism businesses. The benefits are:

- Increased competitiveness
- Economies of scale
- A focus on co-operation and innovation.

Thus, for the realisation of a positive, symbiotic relationship between tourism and the countryside, tourism can contribute to the optimalisation of the development/regeneration of rural areas.

The model proposes that the successful management of the countryside should be able to recognise, satisfy and balance the needs of the conservation and commercial groups of actors within the broader tourism and rural development policies. This balance can be achieved by forming a partnership of relevant stakeholders. Appropriate central government policy and guidance is also an essential part of effective countryside management for tourism. Sharpley (2005:187) concludes that "... *in many rural areas, tourism has become the dominant, though often unrecognized, economic sector. Therefore, not only should tourism policy be synonymous with rural policy at national level, but also the effective management of the countryside for tourism is dependent on the marriage, through a governance process, of*

broader (rural) policy with site- or destination-level business and environmental management". The model can also be applied in the case of geotourism.

At the "*3rd UNESCO International Conference on Geoparks*", Osnabrück, Germany, 22-26 June 2008, Dowling (2008:19) stated that:

- Sustainability underpins ALL tourism development today including geotourism
- Sustainability means being economically viable, community beneficial, and environmentally responsible
- Sustainability is only achieved through appropriate planning and management.

2.2.2 SUSTAINABILITY AND LOCAL AGENDA 21

Agenda 21 is a comprehensive program of action adopted by 182 governments at the United Nations Conference on the Environment and Development (UNCED) at the Earth Summit on 14 June 1992 in Rio de Janeiro. It provides a blueprint for securing the sustainable future of the planet. It identifies the environment and developmental issues which threaten to bring about economic and ecological catastrophes, and a strategy was formulated for a transition into more sustainable practices. Local Agenda 21 (LA 21) was first described in Agenda 21 as the global blueprint for sustainability that was agreed to at the United Nations Conference on Environment and Development in 1992 (the Rio Earth Summit). Chapter 28 of Agenda 21 identifies local authorities as the sphere of governance closest to the people. It calls upon all local authorities to consult with their communities to develop and implement a local plan for sustainability, a 'Local Agenda 21' (http://www.environment.gov.au/esd/la21/index.html, www.world-tourism.org/sustainable/doc/a21.one.pdf).

Salan (2002: 2) describes LA 21 as a process of change aimed at providing a sustainable future. To change organisations and communities requires knowledge, political will, resources and funding but also a whole range of skills and professional expertise seldom found in local government. According to the Sustainability Unit, Environment Australia the LA 21 is a program that provides a framework for implementing sustainable development at the local level. The aims are to build upon existing local Government strategies and resources (such as corporate plans, vegetation management plans, and transport strategies) to better integrate environmental, economic and social goals (http://www.ea.gov.au/esd/la21/).

Cotter and Hannan (1999:167-170) record that Agenda 21 was adopted at the United Nations Conference on Environment and Development (UNCED) Summit meeting in 1992. In the Agenda, there are three primary goals toward sustainable development: relevant national level policies and strategies, integration of decision-making processes and community involvement. Agenda 21 is divided into four sections, and subdivided ingot 40 Chapters. A summary of each section follows:

- **Section I – Social and Economic Dimensions, Chapters 2-8.** This Section examines the adverse social and economic issues and outcomes of unsustainable development and resource use
- **Section II – Conservation and Management of Resources for Development, Chapters 9-22.** This section deals with the "sectoral issues" chapters of Agenda 21
- **Section III – Strengthening the Role of Major Groups, Chapters 24-32.** This Section focuses on local empowerment and alliance building between various social partners to ensure all major groups are actively involved in all program areas of Agenda 21
- **Section IV – Means of Implementation, Chapters 33-40.**

The LA 21 development process is just as important as the final plan or strategy. It is vital that during the process, open discussion and debate about what is important to the whole community should take place. Everyone must work together to reach a shared vision/goal and the development of successful partnerships between government, industry and community groups. During the flexible and ongoing development process, Local Government plays an important role by:

- Helping communities to understand sustainability
- Encouraging debate on sustainability issues
- Leading the LA 21 planning process
- Improving government's own operations
- Forming strong local partnerships
- Implementing action within the community to make their area more sustainable.

There is no fixed model for LA 21. The program should be relevant to the local Government and community involved in its development, and should address the specific environmental, economic and social issues that they face. The pace, size and scope of the program should be decided in consultation with the community.

To get started the LA 21 process, it may be helpful to:

- Research various approaches and outcomes
- Seek political and management commitment
- Develop an inventory of existing council strategies and activities
- Undertake a simple assessment of the current state of the area
- Tailor the LA 21 process to the local council requirements
- Emphasise that LA 21 builds on existing council strategies and resources
- Develop a preliminary budget and roles for staff provide a report to council on the steps in moving forward.

An effective LA 21 process should result in:

- A strong partnership between the local Government and its community
- Ongoing community involvement in decision-making

- Integrated decisions which take into account all foreseeable economic, social and environmental considerations
- A long term sustainability action plan that is successfully implemented and periodically reviewed
- Changes that promote greater sustainability and better environmental outcomes for the community

(http://www.ea.gov.au/esd/la21/).

Cotter and Hannan (1999:1-188) prepared a guide entitled "*Our Community, Our Future: A Guide to Local Agenda 21*". Cotter *et al.* (1999:7-9) state that local governments in Australia and around the world are increasingly becoming lead agencies for sustainable development. They are developing and implementing systematic approaches to provide for the long-term future, in terms of the health and well-being, of rural communities and the environment that supports them. The guide was prepared to provide local councils and the communities they represent with guidance and direction in planning and implementing a LA 21 approach. It is aimed at:

- Individuals and groups who want to know how to gain commitment from key decision makers to establish a LA 21
- Councils that have committed to sustainable development, and need guidance on how to commence a LA 21
- Councils that have started to develop a strategy or who are actively working towards sustainable development but who need further direction, perhaps on a particular aspect of their work
- Councils that are progressing well and want some further ideas.

Action areas in a LA 21 process are:

- **Action Area 1:** Preparing the ground by identifying council structures, strategies and resources to be used to develop a LA 21 with the support of the council, staff, including senior management, and the community
- **Action Area 2:** Building partnerships by establishing an understanding of the community and developing ways and means of extending awareness and involvement in LA 21
- **Action Area 3:** Determining vision, goals, targets and indicators by setting out what the council and the community wishes to achieve, ideally broken down into goals with indicators and targets
- **Action Area 4:** Creating a local action planning document by preparing a statement of actions that the council will undertake in order to realise each target. This includes timeline, budget and responsible officers for each action
- **Action Area 5:** Implementing, reporting, monitoring and reviewing by considering whether the actions are helping to achieve the targets, whether progress is being made towards the goals and whether any aspect of the LA 21 needs changing.

The Action Areas cover the basic activities of a LA 21, which include:

- Involving the entire community in preparing a long term sustainable development action plan through representative community involvement
- Determining the vision, goals, targets and priorities for action, taking an integrated approach
- Working in partnership with all stakeholders to achieve those goals
- Monitoring and reporting procedures, including the use of local indicators to track progress and to allow participants to hold each other accountable to the action plan.

A key element of a LA 21 is improvement of the frameworks and systems used for planning, policy-making and implementing because they can be more influential and enduring than specific actions, which will change regularly. The exact approach that should be taken by each council will vary depending on its particular circumstances (resources, history of working on sustainability and involving the community, and the level of commitment). The types of issues that a community focuses on will also vary from council to council (http://www.environment.gov.au/esd/la21/manual/index.html).

Cotter and Hannan (1999:175-176) state that benefits to a local authority of implementing a LA 21 are the following:

- **Change is managed more effectively.** Local authorities are always faced with change. This includes increased community expectations, delegation of powers from higher levels to local government, and revenue limitations. A LA 21 can help councils deal with change. A LA 21 is a cohesive force, bringing together future planning needs with new structural realities. It allows a local council and its community to develop a locally appropriate means of managing change towards a desired future
- **More effective policy is developed.** Improved planning and better corporate structures are likely to result from the long-term focus of LA 21 and its emphasis on the integration of environmental, economic and social policies and community involvement. With sustainability as the goal, reconciling the apparently competing pressures for economic development, environmental protection, and a more equitable society should be a priority for the council
- **Capacity to meet community needs is enhanced.** Council is more likely to meet the needs of its community when taking an integrated approach and dealing seriously with the answers to questions such as:
  - What does this community value?
  - What is to be left for the next generation?
  - How are these goals to be achieved?
- **The community achieves greater cohesion.** Lack of community cohesion - rapid urbanisation, reduced services in rural areas, high neighbourhood crime rates - can be addressed by involving people in decisions about their future. Community ownership

of the Local Agenda 21 process does not necessarily change people, but it can work towards long term change for greater community cohesion

- **Regional links are strengthened.** Sustainability requires cooperation across the many organisations that are responsible for related issues such as air quality, transportation, regional industry and so on. Stronger regional links can lead to benefits in other areas
- **Costs are saved.** Effective policy integration and good long-term planning can save resources, and therefore money. Cost savings can also be made through practices such as 'life cycle' costing of products, for example, council buildings, and by audits of paper, water and other resources
- **Healthy and vibrant communities are fostered.** By seeking to address economic, environmental and social issues, LA 21 encourages creative solutions, for example, providing opportunities for attracting new future-focused industry (such as energy efficient manufacturers or industry that uses recycled materials) to increase sustainable jobs in the area
- **Relevance is maintained.** LA 21 provides the opportunity to capture the imagination of the local community, and to stay relevant to them. Rather than just servicing the community, local authorities can play a greater role in community development.

(http://www.environment.gov.au/esd/la21/manual/pubs/manual.pdf)

From the above-mentioned discussion a question can be asked: "*Is there not a danger that geotourism may dilute the biological emphasis of what is mainstream ecotourism – so that geotourism is seen as more eco-friendly than ecotourism*"? The researcher reckons that research in the future is necessary to answer this.

At the "*Sustaining our Communities*" International Local Agenda 21 Conference in Adelaide, Australia, Beck and Crawley (2002:2-5) stress that LA 21 was developed at the Earth Summit as a blueprint to aid countries around the world to implement sustainable development. Local government is one of the nine 'major groups' named in LA 21 as being fundamental to achieve sustainable development. It recognises that most environmental challenges have their roots in local activities and therefore local governments are encouraged to promote local environmental, economic and social sustainability by translating the principles of sustainable development into strategies that are meaningful to local communities.

A LA 21 program comprises systems and processes that integrate environmental, economic and social development. Founded on strong partnerships between local government and the community, the progress towards local sustainable development is guided by the preparation of a long-term strategic action plan that integrates existing policies and programs and an agreed future direction. It provides the basis for debate on, and awareness of, sustainable development at the community level. It also challenges people to form their vision of a sustainable future and demonstrates that going through this process is as important as and as fundamental to, the outcome. Establishing the effectiveness of community participation in achieving LA 21

outcomes involves an understanding of what it is trying to achieve. The LA 21 processes are broadly built on the Rio principles of co-operation, building local capacity for change, equal rights and empowerment. More specifically, LA 21 involves:

- Managing and improving the local authority's own sustainability performance
- Integrating sustainable development aims into local government' policy and activities;
- Awareness raising and education
- Consulting and involving the general public
- Partnership
- Measuring, monitoring and reporting on progress towards sustainability.

To change organisations and communities requires knowledge, political will, resources and funding, but not much has happened so far with service delivery. There is not a whole range of skills and professional expertise within local governments and municipalities currently because many skilled people left the country. Although the World Summit on Sustainable Development (WSSD) took place in Johannesburg in 2002, very little has been done to implement the outcomes.

2.3 SUSTAINABLE TOURISM

According to Kusters (2008:3) sustainable tourism has been defined by the World Tourism Organisation (WTO) in 1998 as "*...tourism which meets the needs of present visitors and host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems*"

According to the UNEP and UN-WTO report (2005): "*Making Tourism More Sustainable: a guide for policy makers*" (as cited by Kusters, 2008:5-7) there are 12 aims for sustainable tourism:

- Economic viability
- Local prosperity
- Employment quality
- Social equity
- Visitor fulfillment
- Local control
- Community wellbeing
- Cultural richness
- Physical integrity (landscape, planning)
- Biological diversity
- Resource efficiency
- Environmental purity.

Five policy instruments for sustainable tourism are necessary to achieve it:

1. **Measurement instruments**:
   - Indicators and monitoring
   - Identifying limits
2. **Command and control instruments**:
   - Legislation, registration and licensing
   - Land use planning and development control
3. **Economic instruments**:
   - Taxes and fees
   - Financial incentives and agreements
4. **Voluntary instruments**:
   - Guidelines and code of conducts
   - Management system
   - Certification
5. **Supporting instruments**:
   - Capacity building
   - Marketing and information services.

One needs successful niche markets for the above-mentioned conditions.

Burr (2002:6) says that tourism causes the following to be made available:

- Conveniences for the visitor - transportation and tours
- Food, lodging, hospitality, and other support services
- Economic incentives to finance conservation and recreation
- Political support for recreation and conservation from visitors.

According to the United Nations Education Program (UNEP) of 2004, sustainability, for tourism, as for other industries, has three interconnected aspects: environmental, socio-cultural and economic. Sustainability implies permanence; therefore sustainable tourism includes optimum use of resources, including biological diversity, minimisation of ecological, cultural and social impacts, and maximisation of benefits to conservation and local communities. It also refers to the management structures that are needed to achieve these. However, some organisations prefer to speak of sustainable *development* of tourism, rather than sustainable tourism, for two main reasons:

- For tourism to be sustainable, it needs to be integrated into all aspects of development
- Some aspects of tourism, such as long-haul air travel, may simply not be sustainable with current technologies and best practices.

(www.uneptie.org/pc/tourism/policy/principles.htm, http://www.uneptie.org/pc/tourism/sust-tourism/about.htm).

The World Conference on 'Sustainable Tourism' was held in Lanzarote, Spain in 1995. The organisers stated, "*The application of the principles of the Rio Declaration to tourism is of fundamental strategic value, in view of the importance of tourism. The growing specific*

weight of tourism as a major consumer of natural resources in the world economy is beyond dispute". Two documents were published after the conference, a "*Charter for Sustainable Tourism*" (http://www.insula.org/tourism/charte.htm) and "*The Sustainable Tourism Plan of Action*". In the first document, the declaration is an appeal to the international community and defines sustainable tourism in the framework of LA 21. Sustainability for tourism was given as "*Tourism development shall be based on criteria of sustainability, which means that it must be ecologically bearable in the long-term, economically viable, as well as ethically and socially equitable for the local communities*" (www.gdrc.org/uem/eco-tour/charter.html).

Swarbrooke (1999:13, as cited by Ritchie and Crouch, 2003:36) gives a very good definition of sustainable tourism as "*...tourism which is economically viable but does not destroy the resources on which the future of tourism will depend, notably the physical environment and the social fabric of the host community*".

In a paper on geotourism, Patzak (2000) stated that that sustainable tourism should:

- Be ecologically bearable in the long term. Within the legal framework of national legislation or regulations, a UNESCO Geopark shall contribute to the conservation of significant geological features which provide information on various geoscientific disciplines such as: all solid geology, economic geology and mining, engineering geology, geomorphology, glacial geology, hydrology, mineralogy, palaeontology, petrography, sedimentology, soil science, stratigraphy, structural geology and volcanology
- Be based on the diversity of opportunities offered by the local economy
- Contribute positively to local economic development (creation of local employment)
- Consider its effects on the cultural heritage and traditional elements of each local community
- Mutually involve and respect all actors both public and private (co-operation)
- Improve the quality of life.

Murphy (1998:175) believes that "*It is not very different from the view that we do not inherit the Earth from our forefathers but borrow it from our children, and the old philosophy that something should be left for future generations. As such, sustainable development builds on the old principles of conservation and stewardship, but it offers a more proactive stance, that incorporates continued economic growth in a more ecological and equitable manner*". Thus, sustainable development is a pre-requisite for sustainable tourism. Tourism can be ideally suited for a leadership role in sustainable development, given its multidimensional nature and private/public sector duality. Initiation of this role is a next step in the evolution of sustainable tourism development. To do so, the various stakeholders must be brought together.

A very useful summary of the relationship between sustainable tourism and other terms is shown in Figure 2.7.

Figure 2.7: The relationship between sustainable tourism and other terms (Ritchie and Crouch, 2003: 36)

This is an insightful summary of the key issues that are part of the ongoing debate whether or not sustainable tourism is truly a practical approach to tourism management in general and a viable philosophy of tourism destination management, in particular. Sustainable tourism can be linked to virtually all issues that have an influence on it, that is, physical environment, stakeholders, management, marketing, public sector, industry, taxes, other forms of tourism, education, infrastructure, the list is virtually endless. Even so, the key issues in the sustainable tourism debate are shown in Figure 2.8.

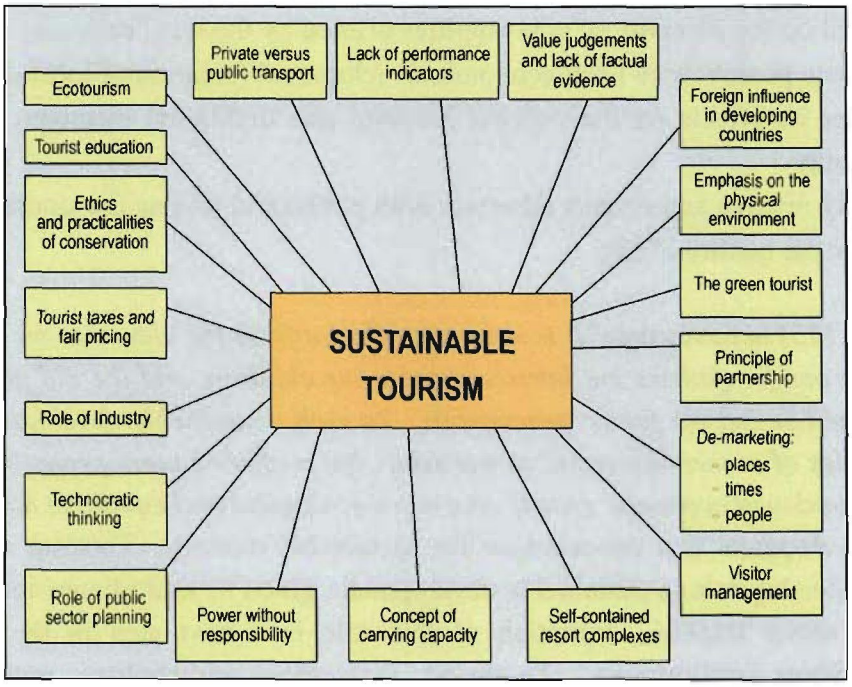


Figure 2.8: The key issues in the sustainable tourism debate (Ritchie and Crouch, 2003:37).

The World Tourism Organization (WTO:1998) defines sustainable tourism as tourism which leads to management of all resources in such a way that economic, social and aesthetic needs

can be fulfilled while maintaining cultural integrity, essentials ecological processes, biological diversity and life support systems. During the recent past, sets of principles have been developed to try to operationalise this idea. The principles identify sustainable tourism as having four pillars: economic, ecological, cultural, and community sustainability. Guidelines have been developed for each of the four pillars.

McKercher (2003:4-5) believes that economic sustainability is profitable in both the immediate and the long term when:

- Partnerships are formed throughout the entire supply chain, from micro-sized local businesses to multinational organisations
- Internationally approved and reviewed guidelines for training and certification are used
- Ethical and environmentally conscious behaviour is promoted among the toruism clients
- T products are diversified by developing a wide range of tourist activities;
- Some of the income generated is contributed to assist in training, ethical marketing and product development
- Financial incentives for businesses that adopt sustainability principles are provided.

Ecological sustainability is development that is compatible with the maintenance of essential ecological processes, biological diversity and biological resources when:

- Codes of practice are established for tourism at all levels
- Guidelines for tourism operations, impact assessment and monitoring of cumulative impacts should also be established
- National, regional and local tourism policies and development strategies that are consistent with overall objectives of sustainable development are formulated
- Environmental impact assessment studies are conducted to establish baselines
- The design, planning, development and operation of facilities incorporate principles ensuring sustainability
- Tourism in protected areas, such as national parks, is incorporated into and subject to sound management plans
- The actual impacts of tourism are monitored and researched
- Acceptable behaviour among tourists is codified
- Responsible tourism behaviour is promoted.

Cultural sustainability increases people's control over their lives and is compatible with the culture and values of those affected. Further, it strengthens the community identity because:

- Tourism can be initiated with the help of broad based community input
- Education and training programs to improve and manage heritage and natural resources can be established
- Cultural diversity can be conserved
- Land and property rights of traditional inhabitants are respected

- The protection of nature, local and the indigenous cultures and especially traditional knowledge is guaranteed
- Indigenous leaders and minority groups are worked with to insure that indigenous cultures and communities are depicted accurately and respectfully
- The community's ability to maintain and use traditional skills are strengthen, nurtured and encouraged
- Tourists are educated about desirable and acceptable behaviour
- The tourism industry, itself, is educated regarding desirable and acceptable behaviour.

Local sustainability is designed to benefit local communities and generate or retain income in those communities because:

- The community should maintain control over tourism development
- Tourism should provide quality employment to community residents
- Businesses should be encouraged to minimize negative effects on local communities and to contribute positively to them
- An equitable distribution of financial benefits throughout the entire supply chain should be ensured
- Financial incentives for local businesses to enter tourism must be provided
- Local human resource capacity must be improved.

(www.devstud.org.uk/studygroups/tourism/resources/mckercher.pdf)

Ritchie and Crouch (2003:44-49) contend that there are four primary pillars of sustainable tourism: ecological, economic, socio/cultural and political/governance environments. Appropriate policy and management solutions must underpin each of them if true sustainability is to be achieved.

Ecological sustainability

The local ecology or natural environment is a major attraction for many destinations. Indeed, the experience of a unique environment often represents the core of a destination's tourism product. For many destinations, these natural phenomena represent the lifeblood of their tourism industries. Any decline in their value will have an adverse effect on the destination's attractiveness. The local must develop its own residents have most at stake in the protection and conservation of their natural environments. The tourism industry has also an important role to play by ensuring that any tourism development minimizes harm to the ecology, and by providing economic incentives, such as funding, that encourage preservation and protection of the environment. Each destination strategy for sustainable tourism development and, by this action, play the role of steward.

Economic sustainability

Economic sustainability is the second pillar. Here, tourism must demonstrate support of a

viable economic base. Thus, any tourism strategy must be capable of meeting the economic needs and aspirations of residents over the longer term. Considerations that may be influential in determining economic sustainability are:

1. Spreading costs and benefits evenly
2. Utilising local labour
3. Providing job security
4. Offering the opportunity to earn wages, salaries and benefits.

Socio-cultural sustainability

To be sustainable, a tourism development strategy for a destination must also address socio-cultural impacts and this focus should be reflected in the destination's vision and goals. Kotler *et al.* (1993:81) as cited in Ritchie and Crouch (2003:47) propose a strategic market planning orientation. The five stages of the strategic market planning orientation are:

- **Place audit**. What is the community like today?
- **Vision and goals**. What do the residents want the community to become?
- **Strategy formulation**. What broad strategies will help the community to reach its goals?
- **Action plan**. What specific actions must the community undertake to carry out its strategies?
- **Implementation and control**. What must the community do to ensure successful implementation of the developed plan?

Political sustainability

Unfortunately, political sustainability is rarely identified as one of the pillars of sustainability. In democratic countries, sustainability principles and their implementation are well-accepted, but this is not the case in totalitarian regimes. Although the four pillars of sustainability act as an interdependent system, if sustainability of the tourism product is to be achieved, every one of the pillars must be in harmony with each other. Every destination must examine its ability to maintain all dimensions of sustainability if the destination is to develop true competitiveness.

Abdullaev (2006:1) developed the Concentric Circles Model of Sustainable Tourism. This model consists of three concentric circles of sustainability. The centre of the model is the intergenerational equity (IE) for the main objective of the sustainable development as stated in Brundtland Report requires development "*...without compromising the ability of future generations to meet their own needs*". The aim of IE cannot be pursued without sustaining capital stock (First circle - sustainability of local capital stock). This includes environmental, socio-cultural and economic capital. For sustainability of local capital stock, the interactions between capital stock and stakeholders, and interactions within stakeholders shall be sustainable (second circle - equity of stakeholders). In order to reach such equilibrium, sustainable strategies must be implemented (third circle: sustainability of strategies). The outer circle of the model consists of tools for sustainable strategies, such as planning,

management, integration into local economy, partnership and cooperation, assessment, training and education, and research. These tools are organised sequentially and are shown in Figure 2.9.

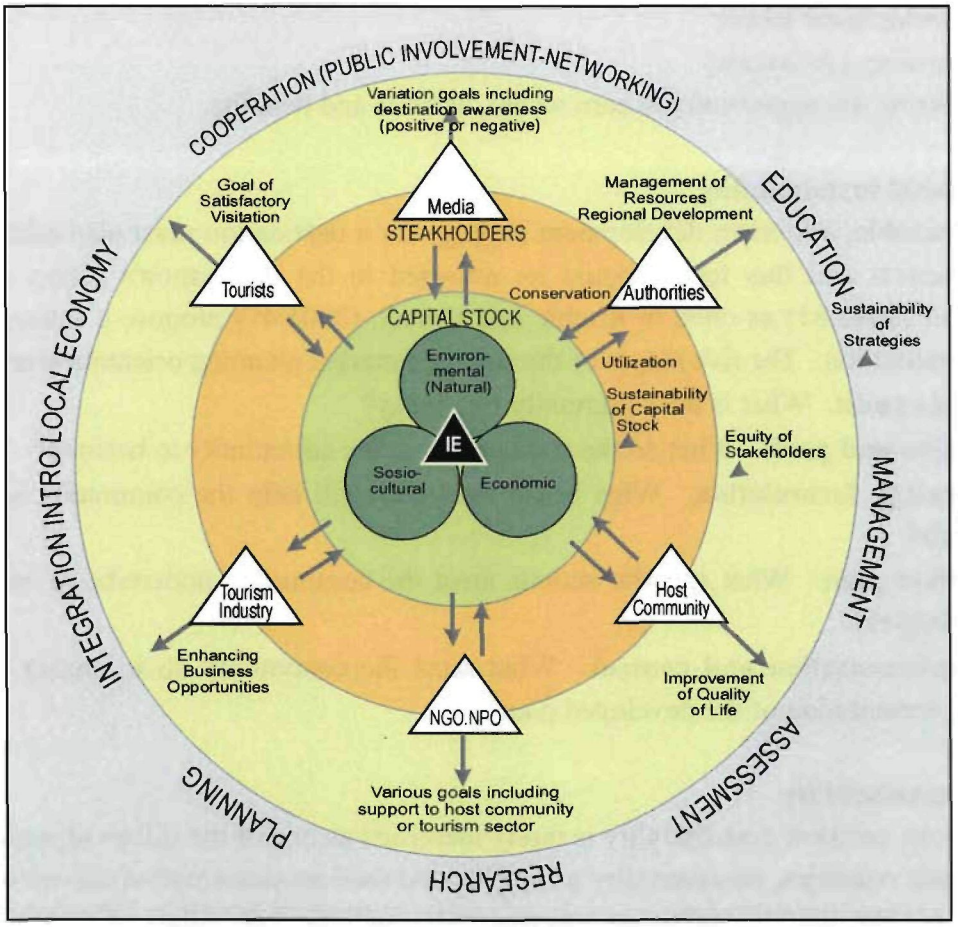


Figure 2.9: The concentric circles model of sustainable tourism (Abdullaev: 2006:1)

When implementing sustainable tourism, the sustainable strategy flow is shown in Figure 2.10.

Spilanis and Vayanni (2004:273) opine that, according to the WTO, all tourism activities, be they geared to holidays, business, conferences, congresses, or fairs, health, adventure or ecotourism itself, must be sustainable. "*This means that the planning and the development of tourism infrastructure, its subsequent operation and also its marketing should focus on environmental, social, cultural and economic sustainability criteria, so as to ensure that neither the natural environment, nor the socio-cultural fabric of the host communities will be impaired by the arrival of tourists. On the contrary, local communities should benefit from tourism, both economically and culturally. Sustainability implies those enterprises, as well as the communities in which they operate, have something to gain from tourism*" (Yunis 2001, as cited by Spilanis and Vayanni, 2004:273). Spilanis *et al.* (2004:273-274) conclude

that "... *we consider as sustainable any form of tourism that, in a given area, alters the conventional tourist product so that it is a more economically profitable and/or a more environmentally friendly product. The evaluation of tourism activity can be based on two criteria: first, the tourist performance per capita, which relates to the added value and the employment created per tourist, as well as the consumption of water and energy and the production of wastes per capita; and, secondly, the scale of the activity compared to the carrying capacity of the host area. Even if the performance per capita is improved, every area has its own environmental, social and economic limits that cannot be surpassed*".

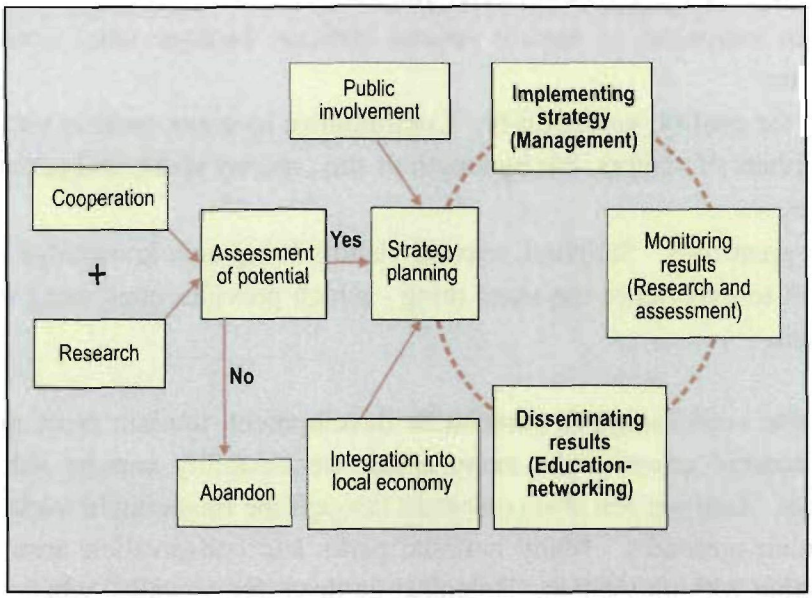


Figure 2.10: Sustainable strategy flow (Abdullaev: 2006:1)

The primary concern of sustainable tourism is to support the balance within the ecological environment and to minimise the impact upon it by mass-market tourism. The use of this term is evolving as it is also used to describe the impact of mass-tourism on cultural and historic resources (www.massculturalcouncil.org/issues/tourismglossary.html).

According to The National Geographic Online, (http://www.gdrc.org/uem/eco-tour/whatis-sustour.html), sustainable tourism has the following features:

- It is informative. Travellers not only learn about the destination, they learn how to help sustain the character of the destination while deepening their own travel experiences. Residents of the destination learn that the ordinary and familiar (to them) may be of interest and value to outsiders
- It supports integrity of place. 'Destination-savvy' travellers seek out businesses that emphasise the character of the locale in terms of architecture, cuisine, heritage, aesthetics and ecology. Tourism revenues, in turn, raise local perceived value of those assets
- It benefits residents. Travel businesses do their best to employ and train local people, to buy local supplies, and to use local services

- It conserves resources. Environmentally-aware travellers favour businesses that minimise pollution, waste, energy consumption, water usage, landscaping chemicals, and unnecessary night-time lighting
- It respects local culture and tradition. Foreign visitors learn about and observe local etiquette; including learning at least a few courtesy words in the local language to use as the situation arises. Residents learn how to deal with foreign expectations that may differ from their own
- It does not abuse its product. Stakeholders anticipate development pressures and apply limits and management techniques to prevent the *"loved to death"* syndrome. Businesses cooperate to sustain natural habitats, heritage sites, scenic appeal, and local culture
- It strives for quality, not quantity. Communities measure tourism success not by the sheer numbers of visitors, but by length of stay, money spent, and perceived quality of experience
- It means great trips. Satisfied, excited visitors bring new knowledge home and send friends off to experience the same thing - which provides continuing business for the destination.

To make a positive contribution to sustainable development, tourism must fulfil ecological, cultural and economic criteria. In many areas, sustainability can be achieved only by controlled tourism. Tourism can also contribute through the financing of social institutions or nature conservation measures. Many national parks and conservation areas would not be economically viable without visitors. Botanical gardens, forest walks, whale watching, farm visits, zoos, etc., can also create income. With astute management, tourism can create income for the local inhabitants. It can also create awareness in the tourists, as well as for local people.

Baumgartner (2002) posits that there are six dimensions of sustainable tourism: ecological, economic, socio-cultural, goal tourism areas that use a Local Agenda 21 process, institutional and tourism core areas. Diagrammatically, sustainability in tourism can be depicted by a pyramid with five corners. The bottom corners are: economic prosperity, optimal need satisfaction of guests, intact culture, intact nature and resource conservation, subjective good health of the locals and respective workers. The apex is the right to plan of future generations. Sustainable tourism development is the implementation of ideas for integrative tourism where the six elements are combined in a common and future orientated development of a region. By this action, the goal of sustainability is coupled with an implementation strategy like the Agenda 21. The sustainability pyramid is shown in Figure 2.11.

In the document, "*A Road Map for Sustainable Tourism in the Nordic Countries*:24", that was prepared in 2003 it was stated that "*(B)ased on the general definition for sustainable development, sustainable tourism has been perceived as simultaneously encompassing the environmental, economic and socio-cultural aspects in the long-term planning of the sector*

development. In order to achieve such balanced development integrating and respecting basic principles such as the precautionary principle, intra- and inter-generation equity, and the responsibility for the preservation of the environment and natural resources for future generations is necessary" (www.norden.org/naering/sk/BtG%20Final.pdf).

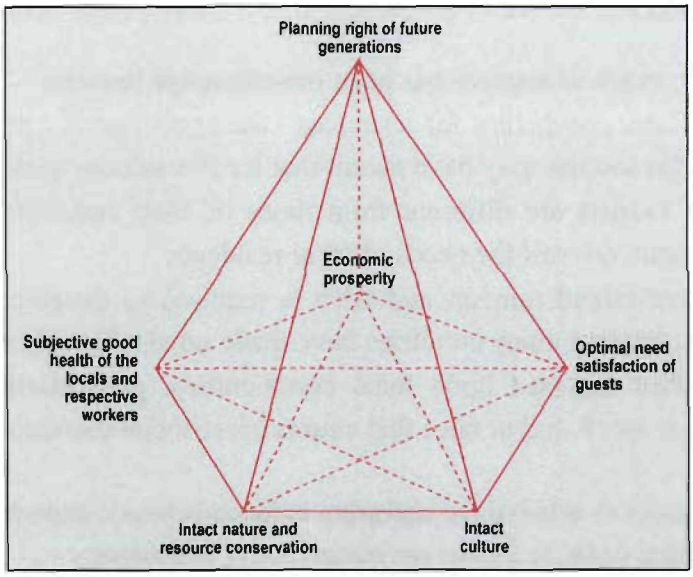


Figure 2.11: The sustainability pyramid (Müller: 1999, adapted by Baumgartner: 2000(b). The text was translated from German by the researcher (2008)

Sustainability in travel and tourism means ensuring markets in which the industry can thrive economically and can generate jobs, creating frameworks for education, training and social development, and protecting and enhancing the cultural and natural environment. A balance must be sought between the three pillars of sustainable development. This balance can be achieved with strong legal support, investment and regulatory frameworks (http://www.wttc.org/promote/pdf/Sustainability_of_EU_Tourism.pdf). Geotourism can provide an opportunity for one to attain relief from possible overuse of ecologically sensitive areas.

In a presentation to the National Seminar on Sustainable Tourism Development in Bishkek, Kyrgystan, 5-9 November, 2003, McKercher (2003:3-5) said that tourism is most ideally suited to adopt sustainability as a guiding philosophy. The reasons for this are:

- Other than transport fuel, tourism does not consume additional non-renewal resources
- A community's resources, for example, its culture, traditions, shops, leisure facilities, represent the core resources base for tourism
- Tourism usage of resources, both natural and cultural, should be non-consumptive, making them renewable
- Tourism represents one of the few economic opportunities available to remote communities
- Tourism provides real opportunities to reduce poverty, to create employment for

disadvantaged people and to stimulate regional development
- Tourism has been proven to revitalize cultures and traditions
- Tourism can provide an economic incentive to conserve natural and cultural assets
- Tourism fosters greater understanding between peoples and a greater global consciousness.

Historically, however, much of tourism has been unsustainable because:
- Tourism is a fierce competitor for resources - the provision of cultural and ecotourism opportunities for tourists may have meant that local residents were displaced
- The needs of tourists are different from those of local residents and, thus, serving tourists may again not suit the needs of local residents
- Few people understand tourism and what is required to develop successful tourism products, meaning that many countries have made unwise investments in tourism
- Tourism is often imposed upon local communities, particularly rural or minority communities, at levels and at rates that causes great social disruption.

Sustainable tourism seeks to achieve the optimum balance between economic benefits and the social and environmental costs. It is also environmentally educative.

Harris, Griffin and Williams (2000:177) conclude that sustainable tourism acknowledges the fundamental links between long term (strategic) planning, conservation of the environment, economic gain and profitability from tourism operations, and social equity. An appropriate tourism policy and plan, on a holistic and integrated basis, is required by all stakeholders. Success is based on:
- Maintaining and improving levels of natural capital stock through accurate and objective assessment of resources
- Controls to observe carrying capacities
- An adequate investment in resource efficient ancillary services
- Opportunities for all parties to contribute, particularly local involvement
- Raising public understanding and promoting intergenerational equity
- Effective environmental policies, tourism management plans, and equitable economic and employment benefits
- Long-term monitoring, assessment and feedback.

In particular, protection or enhancement of the coastal environment, promotion of the economic wellbeing of coastal communities, preservation of the distinctive, coastal, local culture and the promotion of maximum visitor satisfaction should be encouraged. Better networks are needed to both apply the results of research, and to promote and share good practice. Sustainability must be fully recognised as a vital part of coastal tourism policy and decision-making, and its success (or otherwise) needs to be measured, judged and broadcast. To realise quantifiable gains, a proactive approach from the tourist industry will be required, along with a more responsible approach by tourists to their interactions with the natural and

built environments. Hunter (2002:6): believes that for sustainable tourism to occur, it must be closely integrated with all other activities that occur in the host region.

The concept of sustainability is fundamental to the South Australia Tourism Plan 2003-2008. The sustainable tourism strategy is guided by twelve clear principles, based on the Triple Bottom Line (TBL) (that is, on economic, social and environmental factors). The TBL strategy demonstrates that sustainable tourism is characterised by:

1. **Being different**

The key to successful and sustainable tourism is achieving a *clear sense of difference* from other competing destinations. This can be achieved by basing development and marketing on the *attributes and strengths* of the destination.

2. **Achieving authenticity**

The attractions most likely to be successful, and those with the greatest enduring appeal, are those which are *genuinely* relevant to the history, industry, culture lifestyle and natural resources of the district.

3. **Reflecting community values**

This means representing the past, present and future aspirations of the local community in a *living and dynamic way,* rather than embalming the past. This involves listening to and responding to the community.

4. **Understanding and targeting the market**

Understanding the broad market *trends* and the *needs* of specific segments is critical. This involves the development of specialised products based on the inherent attributes of an area.

5. **Enhancing the experience**

People's motivation for travel is to seek something they cannot experience at home. The *'bundling' of attributes* enhances the appeal of a place, and the likelihood of visitation.

6. **Adding value**

Adding value to existing attributes achieves a *richer tourism experience* and helps to diversify the local economy. This can include accommodation, sales outlets, conference facilities and dining in association with established industries.

7. **Respecting natural and cultural values**

Sustainable tourism development derives its form and appeal from these qualities, and adds to the special nature of the destination and in particular respects *ecological processes.*

8. **Achieving conservation outcomes**

A mutually beneficial alliance can be achieved between tourism and conservation. That is, through *understanding and enjoyment* come *greater appreciation and empathy, advocacy and protection* for the resource.

9. **Having good 'content' ('telling the story')**

Tourism development can interpret (can present and explain) natural, social, historic and ecological features. *'Telling the story'* provides a more rewarding experience and helps conserve the destination.

10. **Achieving excellence and innovation in design**

Good design respects the resource, achieves conservation outcomes, reflects community

values and is instrumental in telling the story. It is not just about form and function, but also about invoking an *emotional response* from the visitor.

11. Providing mutual benefits to visitors and hosts

Tourism is not encouraged for its own sake. It is an economic and community development tool, and must take into account the *benefits* that both the host community and the visitor seek.

12. Building local capacity

Good tourism businesses do not stand isolated from the communities in which they operate. They become involved with the community, and collaborate with other businesses and stakeholders to build a *positive and self-sufficient capacity* (http://server-au.imrworldwide.com/cgi-bin/b?cg=&ci=sa-corporate&tu=http://www.tourism.sa.gov.au/tourism/plan/sustainable tourism_principles.pdf). To build local capacity at a Small, Medium and Micro-sized Enterprise's (SMME's) level, the improvement of the SMME's capacity to perform will result in economic growth through institutional capacity building and human resources development. It will encourage:

- Customer orientation
- Involvement of people
- Leadership
- Continuous improvement

(https://www.sabs.co.za/pdf/Business.../Siyakhulapresentation.ppt).

2.3.1 SUSTAINABLE TOURISM DEVELOPMENT

Burr (2002:1-60) discusses the"*Sustainable Development and Use of Our Natural Resources for Recreation and Tourism: The Ideal and the Reality*" in a very informative MS© PowerPoint© presentation. Burr's findings are viewed from several perspectives, those of:

- Conservation, recreation, and tourism
- Tourism impacts
- Tourism and community development
- Sustainability and sustainable development and use
- Sustainable tourism development (STD)
- Obstacles to the achievement of STD
- Feasible approaches and best chances for success.

His findings can be used as a model for the sustainable development of geotourism development in South Africa.

Burr (2002:20-24) is of the opinion that sustainable tourism development is:

- Tied to sustainable use - that careful and sensitive economic development is possible without degrading or depleting natural resources needed by present and future generations
- Promotes intergenerational responsibility.

Burr (2002:31-32) reckons that there are obstacles to the achievement of sustainable tourism development because:

- It is not possible to maximise all goals at the same time through an adaptive process of trade-offs
- Conflict almost always exists between and among inter- and intra-system goals;
- As a result of values, choices are made as to which goals are more valuable and which should receive higher priority
- As a result of the latter point, different development strategies assign different priorities to the systems and their goals
- The concept of sustainable development provokes groups at different levels to set a wide spectrum of goals, and then attempts to reconcile them.

Holmberg and Sandbrook (1992, as cited by Burr, 2002:33) believe that there is no shortcut to sustainability for patterns of sustainable development must be built from the bottom up, showing what can be achieved at local levels and then working to disseminate positive experiences. In conclusion, Burr (2002:34) states that for sustainable tourism development, there must be a balance between a degree or type of development that will bring economic and other benefits to a community, and the point at which that development starts to feed on, rather than sustain, the very elements of its basis.

Cronin (1990, as cited by Burr, 2002:35) says criteria for sustainable development are:

- Adherence to ethical principles
- Involvement of the local population
- Allowing the local population an element of control
- Being undertaken with equity in mind.

In the document "*Managing tourism and biodiversity. User's manual on the CBD guidelines on biodiversity and tourism development*" of 2007, sustainable tourism development is described (www.cbd.int/doc/programmes/socio-eco/tourism/tourism-manual-en.pdf:12-14).

"*Sustainable tourism should: contribute to the conservation of biodiversity and cultural diversity; contribute to the well being of local communities and indigenous people; include an interpretation/learning experience; involve responsible action on the part of tourists and tourism industries; be appropriate in scale; require the lowest possible consumption of non-renewable resources; respect physical and social carrying capacities; involve minimal repatriation of earned revenue; be locally owned and operated (through local participation, ownership and business opportunities, particularly for rural people)*".

This, then, embraces two, interrelated, elements of the sustainability of tourism:

- Assurance that the conditions are right for tourism to continue as an activity in the future

- The ability of society and the environment to absorb and to benefit from tourism in a sustainable manner.

Sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destinations. This includes everything from mass tourism to the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development. A suitable balance must be established between these three dimensions to guarantee its long-term sustainability.

Therefore, sustainable tourism should:

- Make optimal use of environmental resources that constitute key elements in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity
- Respect the socio-cultural authenticity of host communities, conserving both their built and living cultural heritage and traditional values, and contributing to inter-cultural understanding and tolerance
- Ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are equably distributed, that includes stable employment and income-earning opportunities as well as social services to host communities, thus contributing to poverty alleviation.

The informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building is required by sustainable tourism development. It must be understood that the achievement of sustainable tourism is a continuous process. This process requires constant monitoring of the impacts and, whenever necessary, the necessary preventive and/or corrective measures should be introduced.

Sustainable tourism should also:

- Maintain a high level of tourist satisfaction
- Ensure a meaningful experience to the tourists
- Raise their awareness about sustainability issues
- Promote sustainable tourism practices amongst them.

Tourism can support sustainable use and conservation of biodiversity in several ways. Three of these are:

- The promotion of the economic value of biodiversity conservation and sustainable use through stimulation of tourism - particularly where this creates local employment and uses local products and services as it may help to reduce the unsustainable exploitation of natural resources
- The promotion of conservation by raising awareness amongst visitors, and by raising the profile of biodiversity conservation at national and local levels
- Generation of additional funds from tourism for conservation.

Tourism has the ability to grow rapidly but the unmanaged growth of tourism can generate unsustainable pressures that damage or destroy biological diversity and ecosystem processes, as well as a cultural heritage. The net result will be the loss of various environmental services and consequent damage to, or distortion of, social cohesion and the economy of the affected area. The voracious market for tourism, and also for the services and supplies that are required to meet the operational requirements of the tourism sector, could place major pressures on local environments and communities.

Tourism can also add to the costs of managing biodiversity, as investment is necessary to manage and maintain tourism facilities in order to prevent damage to sensitive areas, while the very presence of visitors can present serious problems for biodiversity conservation and sustainable use. Thus, tourism must be managed with care. The costs in relation to impacts on biodiversity must be assessed and these balanced against the benefits of tourism. Ways must be found for local people and communities to benefit from tourism linked to conservation because this helps to graphically demonstrate the benefits derived from the resources conserved.

The environment requires joint action, with inputs from Governments, site managers, local communities and other stakeholders, to achieve the type of that helps both to protect biodiversity and to conserve it. Because tourism to protected areas is already very established, appropriate plans should ready, depending on the level of use (transpiring or anticipated).

If tourism is already well established in an area, the key management options are to find ways:

- To minimise the damage caused by existing tourism to sensitive sites
- To direct new tourism (and, if possible, to redirect existing tourism) to less sensitive sites.

In order to generate funds and support conservation, tourism should be managed in ways that are compatible with biodiversity conservation. The available evidence shows that:

- Only at a few sites can revenues raised from tourism provide a major portion of site management costs
- For most sites, tourism is unlikely to provide a major source of revenue for site management, and so will not necessarily provide sufficient revenue to cover the costs incurred by the site in connection with the management of tourism and of tourism-related impacts.

The above discussion of tourism development can be applied with success to geotourism in South Africa.

2.4 STEPS FOR SUSTAINABLE TOURISM

In 2004, the Department of the Environment and Heritage of Australia developed a document "*Steps to sustainable tourism*" in planning for a sustainable future for tourism, heritage and the environment (http://www.deh.gov.au/heritage/publications/sustainable-tourism/pubs/steps.pdf). The ten steps are shown in Figure 2.12 below.

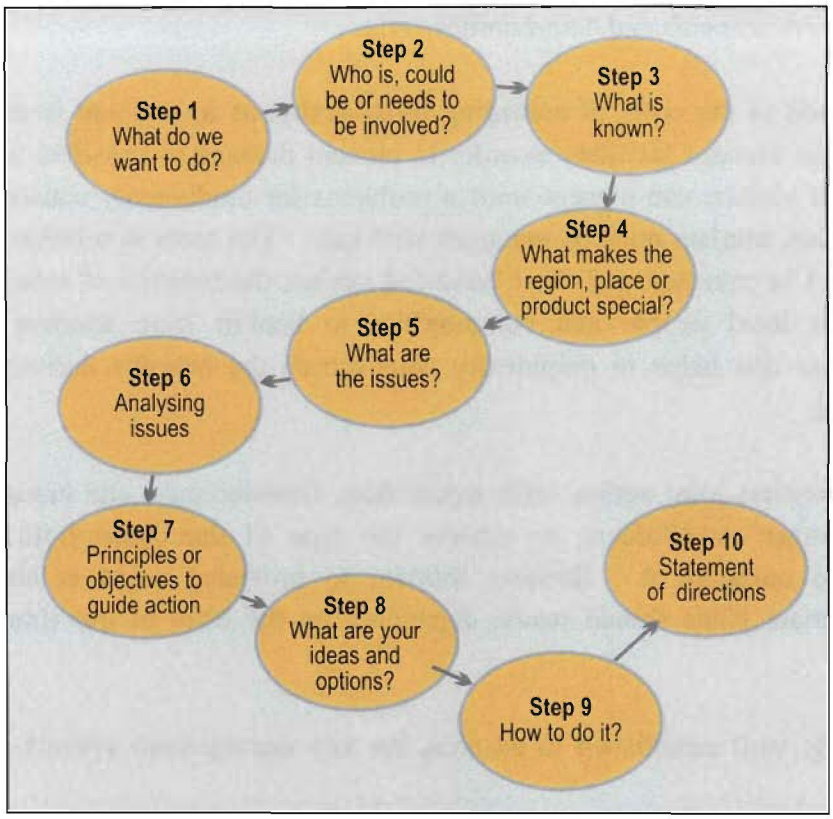


Figure 2.12: The 10 steps for sustainable tourism plans (http://www.deh.gov.au/heritage/publications/sustainable-tourism/pubs/steps.pdf)

This document is a tool to use when managing and developing regions, places and tourism products. The document is designed to be of use to tourism operators, heritage and environment managers, community groups and others with an interest in places, regions and associated tourism products. The document stresses that, to achieve sustainable tourism requires motivation, determination and a systematic approach. The underlying principle of the guide is the need to recognise and protect the values of special natural and cultural places in order to enhance tourism product development and the management of places in the long term. The guide stresses a very important aspect and says, "*(A)chieving sustainable tourism requires motivation, determination and a systematic approach. (Following the 10) Steps (approach) offers a tool or process to assist in this task that has been developed and tested in partnership with both tourism and heritage interests. The process, set out in 10 steps, integrates the needs of tourism, the environment and heritage when developing a tourist destination, a tourism product or managing a place*". Sustainable tourism is a long-term goal

to make a region, place or tourism product special and perhaps unique. Proper planning is the starting point if this goal is to be achieved. A thorough documentation of the ten steps will produce a sound basis for a plan, whether the plan be for a place, region or a tourism product. A checklist can be used to help with review of the task at hand. It can also be used to review or update existing plans.

An adaption of the Department of the Environment and Heritage of Australia "*Steps to sustainable tourism*" document follows, tailored to South African needs.

STEP 1 - WHAT NEEDS TO BE DONE?

This step will help to define the aims and understand the context.

- **What are the aims?** A clearly defined aim will guide the work ahead. It can be as simple as desired, and can be worded many different ways, such as in a vision statement, mission statement or statement of purpose. Investment of even a little time in making sure this statement is tight, clear and achievable is most desirable
- **What is the context for the particular region, place or project?** To help in better understanding the context of the region, place or project, the scene will need to be set in a brief overview statement.

STEP 2 - WHO IS, COULD BE, OR NEEDS TO BE INVOLVED?

This step will help to identify stakeholders, will consider when and how people should be consulted and involved, and lastly will determine how to develop effective working relationships.
This step is important as it will underpin all future steps and will need to be revisited and updated continually.

- **Who are the stakeholders?** Determine who is, who should, or who could be involved by listing all potential stakeholders
- **How to consult and involve people.** Informing and involving people can be challenging and time consuming but can make a huge difference to successful projects, plans and tourism products. Consultation processes can be targeted at the key stakeholders for specific purposes, or might be designed to generally inform the community, build support and so seek willing involvement
- **Developing partnerships.** Successful tourism often requires resources that no one organisation can offer, and so partnerships can be an effective tool when dealing across tourism and heritage issues. They can help to build support, and to coordinate rather than duplicate, efforts. Taking a partnership approach early in the process, may help when seeking approvals and may ensure that all the right information is available as a project progresses.

STEP 3 - WHAT IS KNOWN?

This step will help to identify existing studies or sources of information relevant to the process or project, can locate and summarise available information on the current and potential market for tourism, and thereafter determine the heritage assets, their heritage values and themes. Information is a powerful tool and drawing together relevant data will provide a solid grounding for future decisions. While seeking for material on planning and managing tourism at heritage places, and the current and potential tourism market, it may be found that much useful information already exists.

- **Where to look.** Books, newspaper articles, sound recordings, council records, tourism brochures, annual reports, tour operator records, park management plans and research reports could all be examined for relevant information and data
- **Other sources.** They are many sites giving environmental and heritage information available on the internet

To finalise this step, consider the information that has been collected and reviewed. A draft will have a summary of 1) the key sources of information, 2) the natural and cultural heritage assets of the region, and 3) the current and potential market for tourism. This data can be used to 1) inform all stakeholders of what information is available and what it indicates, 2) show what underpins the process, and 3) outline what information exists and what more needs to be obtained.

STEP 4 - WHAT MAKES THIS REGION, PLACE OR PRODUCT SPECIAL?

This step will assist in identifying what is special about a particular region, place or product, establish how well its special values are recognised and currently communicated, and will finally establish whether further potential exists to use these special values in tourism and interpretation. Tourism, heritage and local community interests could benefit from developing a common understanding of what is significant so that a unified approach to presenting local and regional heritage to visitors is developed.

- **Identifying natural and cultural heritage values.** Natural and cultural heritage sites are often the key assets for tourism. The unique qualities of a place, or its values, can be a large part of a tourism business and its key selling points. Understanding the values of heritage places is essential for effective product development, planning, marketing, management and interpretation
- **Identifying other values.** Other values, aside from those formally recognised by heritage specialists, are also important. These may be the less tangible aspects that make a place, region or experience special to the local community or to visitors. They may relate to its cultural, community, recreational and economic uses

- **The tourism perspective.** Stories based on heritage values, particularly those provided by local people, are often what make a place attractive to visitors. These stories are also what visitors take away with them and share with others when they return home. The combination of values, stories and landscapes, can create a total 'experience' for the visitor.

STEP 5 – WHAT ARE THE ISSUES?

This step will help to identify and understand the key issues affecting the region, place or product under consideration. It is about identifying all the important issues or factors that might affect what happens in the future. This means speaking with people and examining the information collected to date. Tease out important matters that are still unresolved or that will affect the place, region or tourism product.

- **Ways to identify issues.** Identify issues clearly and thoroughly. Where necessary, consider using professional skills and approaches, such as those offered by facilitators experienced or trained in techniques for working with stakeholders and identifying issues
- **Identifying issues.** To help consider and cover the range of issues relevant to both tourism and heritage, it may be useful to consider:
  - Consumer/visitor experience
  - Community experience
  - Environment/heritage management and impacts
  - Infrastructure issues
  - Market/marketing issues
  - Tourism product availability
  - Economic cost/benefit issues
  - Training/capacity building
  - Strategic and resource context
  - Approvals and regulation.

  The researcher reckons that the link between sustainability and environmental education is integral to each other.
- **Handling conflicts.** It is important to identify areas of potential or actual conflict, as these can reappear later as barriers to progress or action. Looking beyond the conflict of different ideas and people and getting to the root cause can often help to resolve the issue. Conflict is sometimes inevitable. It can make ideas or projects unworkable, but it may also present opportunities for innovative solutions. Various methods of conflict resolution and mediation processes exist. Rather than focusing on the particular individuals and their views and perhaps creating an adversarial situation, there are ways of working with interests to acknowledge views, explore issues and develop solutions cooperatively.

STEP 6 – WHAT ISSUES NEED ANALYSIS?

Now that the issues have emerged from the last step, further clarification must be sought as to the current state of the project. Important issues need to be fully understood if the right decision is to be made about any particular course of action. Concentrate efforts on analysing priority issues. If resources are limited, it may be necessary to make a judgement based on available information and analysis. Analysis may simply be a matter of presenting a reasoned judgement about an issue with justification of how that position was arrived at, and citing the data or information supporting this.

- **Market analysis.** A number of market-related issues would have emerged in the previous step. A market analysis is an analytical summary of how the region, place or product fits into the marketplace. It takes into account the saleability or profitability of a product or service, based on information about the product and the potential market. It may include an assessment of how the region, place or tourism product compares with existing competition. Is there competition for a similar market? What are the strengths of those markets? What does the product being developed have? Is the market big enough to share? How can a region, place or product be presented in the marketplace to maximise the fit between what it offers and what the customers want?
- **Heritage conservation analysis.** In Step 4 the factors that make the place special were identified, its heritage values
- **Situational analysis.** This is a description of the context in which tourism is currently occurring. It will include the main determining factors such as the seasonal or geographic flow patterns and the functional relationships at play. Understanding the situation is the first step in designing the response. It involves an analysis of needs and assets, an understanding of what works well and what does not and of the capacity of those involved. Including neutral parties in situational analysis helps to build a better understanding of the context or situation
- **SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).** This is a very standard way to help identify and consider the issues identified in Step 5. A SWOT analysis is a simple and useful part of many types of strategic plans, including business plans. In this process, the present strengths and weaknesses of the situation and future possibilities for opportunities and threats are considered. Addressing the weaknesses and threats can lead to their becoming strengths and opportunities. This analysis will help gain an overview of key issues, and will help to articulate issues that may not otherwise have been revealed. It is useful to undertake SWOT analysis after information from issues identified in the last step has been collected and considered.

Some possible SWOT analysis questions that can be asked are shown in Table 2.1.

TABLE 2.1: POSSIBLE SWOT QUESTIONS

STRENGTHS	OPPORTUNITIES
• Does the destination a currently popular tourism product? • What aspects of the environment or heritage are being well managed? • Are knowledgeable people working in tourism and heritage management? • What are the strengths of the staff or people involved?	• Is there an opportunity to promote the natural and cultural assets to tourists? • Are people in the community interested in working in tourism and heritage management? • Could tourism utilise underused infrastructure? • What opportunities are there for partnership and collaboration?
WEAKNESSES	**THREATS**
• Are current approaches to interpretation looking a little 'dated', or in need of revision? • Are there physical factors of the place or region that make visitor management difficult? • Are there particular factors that present problems for marketing? • What does evaluation and feedback indicate could be done better? • Is there a lack of training or capacity?	• What threats are there to the heritage values of the place or region? • What threats are there to the physical condition of heritage places? • What threats are there to the livelihood or ongoing economic or social viability of the local community? • What threats are there to the viability of the business? • What threats are apparent from an analysis of potential risks?

- **Cost–benefit analysis.** This is a relatively simple and widely used technique. As its name suggests, simply add up the value of the benefits of a particular approach or idea and then subtract the associated costs.
- **Priority analysis.** Priorities may be determined in many different ways, but a simple way is to look at the importance and urgency of the issues and set them out on a chart. Ideally, an analysis of this nature should be done with a group of stakeholders so that a common understanding of the key issues is developed. This will help point towards particular options and future courses of action, and will help to build agreements between stakeholders on possible future directions.

STEP 7 – WHICH PRINCIPLES OR OBJECTIVES WILL GUIDE THE PROCESS?

This step will help to develop a clear written statement to guide future actions, such as a set of principles, a set of objectives or both, and then gain agreement on these principles or objectives from key partners or stakeholders. Now that an understanding of tourism and heritage values and the key issues at play has been gained, consideration must more specifically be given to what is to be achieved. This should be a balance between looking after heritage and developing tourism if, and where, appropriate. It is very important that

principles or objectives are agreed to by key stakeholders and that they have a high level of ownership. Implementation of the principles works best when stakeholders feel they have played an important part in the development of the plans.

- **Principles.** In some cases, a general set of principles is the most appropriate way to guide the direction and breadth of future work. Principles can be expressed in the form of guidelines, as protocols or policy statements. For example, a tourism business might develop a set of responsible tourism principles, or a set of protocols might be developed with indigenous communities covering issues relating to indigenous heritage and tourism
- **Objectives.** Setting objectives is one of the most common ways of planning. Objectives are sets of short statements that can be likened to goal posts. They are something to aim towards, and will give a clearer focus to the plan and efforts. An objective should be written in clear language, be specific, measurable, realistic, and have a time frame. They form an important part of many planning documents, including business plans.

STEP 8 - WHAT ADDITIONAL IDEAS AND OPTIONS ARE TO BE CONSIDERED?

This step will help to further refine ideas and if necessary develop options, to work through ideas and options with key stakeholders and decision makers, and lastly to seek agreement on preferred options with necessary partners or key stakeholders. This step will help to clarify ideas and options, to make decisions and prepare all concerned to take action.

- **Developing ideas.** As this process has been worked through, many ideas will have emerged or will have been put forward by the stakeholders. These ideas will now be brought forward, and their potential working shown. Specific ideas can be bundled into packages or groups of actions. Account must be taken of key issues, and steps taken to ensure the maximisation of opportunities and the management of any threats. If clear ideas and options do not emerge at first, they will need to be developed through discussions, brainstorming sessions, focus groups or workshops
- **Analysing issues further, if needed.** When developing ideas or options, it may be discovered that there is not a clear picture of some important elements. If so, it will be necessary to return to Steps 5 and 6 to gather more information or to further analyse the situation. If there are several possible scenarios, each scenario must be tested in light of the market analysis. It may be necessary to conduct specific market testing of the ideas or product
- **Developing recommended option(s).** Once the ideas have been tested, and any extra information that is needed has been gathered, the preferred options may be developed. These should be backed up by a clearly reasoned statement supported by the information that was collected in the steps thus far. These options can then be presented in a proposal, feasibility study or strategic plan. Good communication and

people skills can make a difference when it comes to persuading others of the benefits of the recommended option(s)

- **Seeking agreement on preferred option(s).** Negotiating over the best course of action can be complicated by possible tensions between competing interests, beliefs and views. Different stakeholders are likely to have different, but equally legitimate, priorities. At this point, it is important to focus on the positive mutual interests that can link tourism, heritage conservation and communities and that can form the basis for cooperation.

STEP 9 - HOW TO DO IT?

This step will help to:

1. Develop actions to implement the ideas, proposal or preferred option
2. Present them in a clear and logical form
3. Ensure they are included in other relevant plans and strategies
4. Develop monitoring and evaluation methods, and
5. Consider additional factors that will influence achieving the objectives.

The preferred options or ideas from the previous step now need to be turned into actions that can be implemented. Making new projects or ideas happen may involve many stakeholders, organisations and groups. Even if implementation is the responsibility of one organisation or business, it will probably be necessary to gain the support or approval of others. Whatever the situation, a clear implementation plan is essential. This not only makes sound business sense but also is standard practice in project management. This plan can also be called an action plan or a work plan.

In addition to developing the plan, each participating organisation may need to look at its own planning documents to ensure that the implementation plan links to existing planning documents. The sample format covers the important implementation issues. For each objective, list the proposed actions needed to attain the goal as follows:
This step will help to:

1. What needs to be done? (proposed action strategy)
2. Who should be responsible and involved
3. What is the sequence and timing?
4. What resources are needed?
5. How will this action or strategy be monitored and evaluated?

- **Additional factors.** These factors that are crucial to address include:
  - **Strategies for political support.** Consider and include actions that help build political support for what is wanted to be achieved. Lobbying can be a legitimate and necessary activity
  - **Communication.** Good mechanisms for communicating are vital in bringing together diverse interests and helping them to work together. Consider and

include any actions or activities that will make this happen. Too often these communication activities are not given the resourcing or attention that they deserve

- **Capacity building.** While training and staff or community development may be included as an objective of the plan, it may also be desired to think carefully about whether or not implementing the plan will need specific training or capacity building. What support or additional capacity do individuals or groups need to participate and play an effective role in implementation?
- **Making links**: Consideration needs to be given to how different activities can link together to create a whole which is greater than the sum of its parts. Often the most efficient use of resources comes from 'piggy-backing' on other initiatives and pursuing activities with multiple outcomes
- **Staging.** Consider how actions can build up in stages over time to reach the desired result. At times it may be necessary to reach one stepping stone before reassessing where to go next
- **Influence.** Gain the support of other key players and influence other plans or activities to increase the ability to make a difference. Ways of gaining support need to be considered and included in the planning and activities.

- **Keeping on track.** Any strategic plan, development plan or action plan or action plan needs to be followed and referred to regularly to ensure continued relevance. The best way to use a plan is to constantly check and report on progress
  - **Performance measures or indicators.** These can be used to monitor progress and identify what is being achieved. They help to demonstrate how well an organisation, program or strategy is meeting its objectives or if actions are not proceeding as planned. They can also show where performance can be improved. Performance indicators can use both qualitative and quantitative information. They should be relevant to the program's desired outcomes and objectives, be quantifiable, verifiable and free from bias. Indicators can be relatively simple, cheap and easy to measure
  - **Monitoring and reporting**. Build into the implementation plan key points at which to check progress. It is a good idea to give formal progress reports to the group with responsibilities across both tourism and heritage interests. This will help keep attention on what has been achieved and what still needs to be done. Timeframes for monitoring and reporting are important and should be carefully thought through. Enough time must be allowed to determine if the outcomes are successful or whether a significant impact has been made. If unforeseen obstacles arise, it may be desirable to report them sooner rather than later to avert future negative consequences. Consideration of the time required to collect and collate monitoring data must be made
  - Evaluating and reviewing. The plan should also include a timeframe (three to five years is typical). A major evaluation and review should be conducted at the end of this time. This evaluation may lead to the plan being refreshed or the process being repeated to produce a new plan. Keeping track of progress means that

efforts can be redirected and management continually adapted to suit changing circumstances.

STEP 10 - STATEMENT OF DIRECTIONS

This step will help to prepare a brief statement summarising the outcomes of the process and of proposals, identifying the key heritage and tourism assets, key issues, and agreed actions and future directions. By writing a plan, this step is akin to the conclusion or executive summary. It summarises, in as succinct a form as possible:

- The key heritage and tourism assets of the region, place or product
- The key issues
- The agreements and outcomes reached between parties.

This is a very practical tool to use as a guideline when planning and developing the future geosites, geo-areas and geotourism products in South Africa.

2.5 CONCLUSION

Chapter Two explained the concept of sustainability and how it was defined, developed and structured subsequent to the Rio 92 conference. The concept was described as an economic, social and ecological issue. The key principles of sustainability are integration, community involvement, precautionary behaviour, equity within and between generations, continual improvement and ecological integrity. The Local Agenda 21 document, a comprehensive program of action, was adopted at the conference. Sustainability in a Local Agenda 21 context has three primary goals toward sustainable development: relevant national level policies and strategies, integration of decision-making processes and community involvement. Sustainability has several benefits: managing change more effectively, more effective policy development, enhanced capacity to meet community needs, greater community cohesion, stronger regional links, cost savings, a healthy and vibrant community and staying relevant. For tourism to be sustainable, it needs to be integrated into all aspects of development.

The EcoSteps sustainability tree is a new tool showing where stakeholders links to each other and was proposed by Crawford, Young and Miall (2002). A useful diagram by Cherqui (2005) shows the evolution of sustainable development over time. The four pillars of sustainable development: economic prosperity, social well-being, environmental stewardship and governance were developed. The relationship with sustainable development followed. Economic, environmental and socio-cultural considerations need to be well understood in the successful planning, development and management of tourism. There are three aspects underpinning sustainable tourism: economic, social and environmental and a political aspect. In developing sustainable tourism, three stages can be identified in the formulation of a strategy: 1) Analysing conditions, problems and opportunities, 2) Identifying objectives and making strategic choices and 3) Developing policies and action programs.

In South Africa, the NSSD (2006) provides an integrated framework for it views social, economic and ecosystem factors as embedded within each other and underpinned by systems of governance.

Geotourism was discussed as was how other authors expanded on the definition. Political/governance environments were added as another pillar to sustainability additional to the existing ones of ecological, economic, and socio/cultural. It was also demonstrated that sustainability must be integrated into planning, policy, management, use of resources, conserving the environment, economic gain, profitability from tourism operations, and social equity. Therefore, tourism is ideally suited to adopt sustainability as a guiding philosophy. An appropriate tourism policy and planning on a holistic and integrated basis should be agreed by all stakeholders. Abdullaev (2006) developed the Concentric Circles Model of Sustainable Tourism (CCMST) where the centre of the model is the intergenerational equity (IE) as the main objective of the sustainable development by using local capital stock,

"*Steps to sustainable tourism*" was a document of the Department of the Environment and Heritage of Australia (2004) in developing a plan for the sustainable future for tourism, heritage and the environment. It is explained in detail as it could be applied in South Africa with practical guidelines for the future planning and development of geosites, geo-areas and geotourism products in South Africa.

CHAPTER 3
COMPONENTS OF GEOTOURISM

3.1 INTRODUCTION

Chapter Three will explain the concepts of geotope and of geosite, and their selection criteria as the basis on which geotourism are built. Verpaelst's (2004) classification was used to compile a list of geosites in South Africa. The geosites were classified as lithological sites, stratotypes or a type section, geosystems, geological or geomorphological landscapes, caves and grottos, mineral sites, historical mine sites, fossil sites, geological environments that support an ecosystem and meteorite impact sites. Geosite selection criteria means that only a single criterion such as size, accessibility, scientific value, geotourism appeal, educational value, historical significance, cultural, spiritual and social value, economic value, international significance, link with biodiversity and aesthetic quality may be sufficient to recognise the outstanding character of a geological site.

A short overview of some of South Africa's most known and typical geosites and geo-areas follows. They are The Barberton Mountainland, The Witwatersrand Goldfields, Evidence of early life in dolomites in sediments of the Vaalium Era, The Bushveld Complex, The first 'red beds', Diamonds from the deep, Great balls of fire, The Tswaing Meteorite Impact Crater, A continent-wide eruption, Permo-Triassic Area, Cradle of Humankind, Cradle of Humankind, Cango Caves, Kruger National Park and Table Mountain. A comparison of their overseas equivalents will follow their description.

Geodiversity is a very a useful concept for geoconservation and management of abiotic heritage. It is the diversity of minerals, rocks, fossils, soils, landforms and geological processes that constitute the topography, landscape and the underlying structure of the Earth.

Geoheritage refers to the heritage of geology and the various products thereof. Geological heritage (geoheritage) means the heritage of geology and the various products thereof. A new form of tourism, known as geotourism, is being developed in Europe and North America. This includes geology, mineralogy, palaeontology, geosites, present and defunct mines, caves, and collections of geological specimens in museums.

The origins and development of geotourism will be discussed further into this chapter as well as the components (building blocks) of geotourism. The relationship of geotourism to other types of tourism will be demonstrated. It will be shown that without geoconservation, there can be no geotourism.

The World Conservation Union (IUCN) has inventoried and defined six categories of protected areas. A UNESCO World Heritage Site is defined as a specific site, such as a forest, mountain range, lake and desert. The aim of such definition is to catalogue, name, and

preserve sites of outstanding importance, either cultural or natural, to the common heritage of humankind.

A very successful management tool is geo-education through geotourism. The role of interpretation directed at visitors, geoscience education activities, geo-exhibitions and geo-events will be examined. It will be shown how geotourism products may be used at geosites, geological and mining museums, historical mining towns, geological and theme parks. Examples of geotourism products and their utilisation are given.

The use of geosites, old mines, caves, geomuseums, geo-exhibitions, geo-events, geotrails, geoparks geolectures, geoworkshops and geoconferences as part of geotourism will be examined. The chapter will clarify and contextualise the following concepts under investigation: geosites, geoconservation, heritage and geoheritage, geotourism, geoconservation and education through geotourism.

3.2 GEOSITE CONCEPT

Marty, Cavin, Hug, Jordan, Lockley and Meyer (2004:42-43) discuss the geotope and geosite terminology. Geotope was coined following an idea in conservation biology that describes an object of unique and outstanding appearance of biological assemblage, in contrast to the surrounding, as a biotope. Stürm (1994) began to introduce the term geotope in Europe as a distinct part of the geosphere of outstanding geological and geomorphological interest. The term geosite was proposed by Wimbledon (1996), which is more general in scope than geotope, and encompasses any site that contains significant geodiversity. Komoo (1997) introduced the same concept in Malaysia and differentiated it by using the term, "geosite", which is more general in nature and encompasses any site that contains significant geodiversity.

Glitz (2004) says that the "*Akademie der Geowissenschaften zu Hannover e.V.*" started in March 2004 with a competition to determine the 50 most important geotopes in Germany. It was published under the title "*Die bedeutendsten Geotope in Deutschland*". The outstanding geotopes in Germany are represented by important geotopes consisting of a single, a collection or a landscape geotope. Therefore, they are represented by geotopes whose Earth historic events are of exceptional natural interest. This includes the development of life, geological processes in the development of landscapes and geomorphological units or geological attractions. Geotopes are single, small or large evidences in the development of the Earth and of life on them. They represent natural or industrial outcrops of rocks, loose deposits and fossil finding places, minerals, ores, landforms and springs. Geotope collections represent piles of geotopes that are tightly fitted together in a spatial and genetic relation. The objects can be distinguished in an international comparison by the exceptional geoscientific importance, clear view or beauty. They must represent good Earth historical, geological and landscape processes or events or developments Geotope landscapes represent geological and geomorphological attractions with a special peculiarity. These distinguished

and important geotopes must be sustainable in the long term. They must publicly be displayed in a museum, on a learning path or as an identified viewing/inspection object. They could be part or a single feature of a geopark.
(http://www.geoakademie.de/AGH1_of-Dateien/Geotope/WGeotop2_of.htm, http://www.geoakademie.de/AGH1_of-Dateien/Geotope/WGeotop5_of.htm).

Pupienes, Kmita, Kowalski and Mikulenas (2006:41) believe geotopes are protected, typical or unique geological, geomorphological or geo-ecological important objects in the geosphere that exist as a single object or collection, and that they have significance in science and knowledge. They give information about the Earth's evolution or life on the Earth and are unique and non-renewable. "*It is the most often definition using* (sic) *by geologists, who deal with geological heritage survival. This definition is not steady and strict but the meaning is definite. It helps to add, to the Geotopes database, other objects which are still not protected or to notice their geological value*". A geotope is a delimited area with defined geological attributes or phenomena. It represents a special geological phenomenon or a combination of geological phenomena. All areas on the Earth are a part of one or several geotopes. They are fundamental to biotopes (http://www.sgu.se/hotell/progeo/news/4_2001/e-n.html). Vincent (2004:7) believes that geotopes are spatially defined terrestrial units with outstanding geological or geomorphological qualities that are worthy of protection for future generations. This definition specifically requires that they provide evidence of the geological history of the landscape and its development. Dowling and Newsome (2006:6-9, 12) describe a geosite as a landscape, a group of landforms, a single landform, a rock outcrop, a fossil bed, a fossil, caves, meteorite impact crater, volcano and even a mine site.

In this study, the terms geosite and geotope are used interchangeably.

By using Verpaelst's (2004) classification, a list of geosites in South Africa was compiled and shown below as Table 3.1.

TABLE 3.1 TYPES OF GEOSITES

TYPE OF SITE	DEFINITION	SELECTION CRITERIA	EXAMPLES
LITHOLOGICAL SITES	Outcrops with outstanding value in terms of composition and stratigraphic, phenomeno-logical, petrologic, structural, tectonic or	Scientific value. Refuge for rare species. Vulnerability. Educational value. Palaeo-biodiversity.	Barberton Mountainland. Witwatersrand, Transvaal (Vaalium), Cape, Waterberg and Karoo Sequences. Pilanesberg Complex. Western and Eastern Bushveld Complex. Platinum pipes.

	historical significance.		
STRATOTYPES OR TYPE SECTION	Specific point in a sequence of rocks or sediments that serves as a marker for a unit or a stratigraphic boundary.	Scientific value. Vulnerability. Unique character. International significance. Stratigraphic landmark. Educational value.	Witwatersrand, Transvaal (Vaalium), Cape, Waterberg and Karoo Sequences.
GEOSYSTEMS	Site that contains an assemblage of rock or sediments which, given their character or association, represent a geosystem.	Educational value. Scientific value. Geotourism appeal. Representiveness.	Sections along Barberton, Witwatersrand, Transvaal, Cape and Karoo Sequences. Bushveld Complex. Phalaborwa Complex. Pilanesberg Complex.
GEOLOGICAL OR GEOMORPHO-LOGICAL LANDSCAPES	Site that represents a significant record of the geological history or landscape evolution. It may be a particularly beautiful geological formation, or an example of harmonious development.	Historical significance. Educational value. Scientific value. Vulnerability. Geotourism appeal. Aesthetic quality. Economic value.	Drakensberg escarpment. Cape Folded mountains. Lebombo mountains. Waterberg and Soutpansberg mountains Bushveld Complex. Waterfalls. Pans.
CAVES AND GROTTOS	These are natural openings. Grottos form as a result of	Scientific value. Geotourism appeal. Vulnerability. Educational value. Refuge for rare species.	Cango caves. Sudwala caves. Wonderwerk caves. Kuruman cave/fountain Sterkfontein caves.

	geodynamic processes such as the freeze/ thaw cycle. Caves form because of the dissolution of calcium carbonate.	Economic value. Paleo-biodiversity.	Bloubos cave.
MINERAL SITES	Outcrops that contain several types of minerals of outstanding value in terms of composition and crystallo-graphic, petrologic, aesthetic or historical significance.	Scientific value. Vulnerability. Educational value. Economic value.	Witwatersrand, Barberton and Murchison gold mines. Kimberley, Cullinan and other kimberlite mines. West Coast diamond mines. Alluvial diamond mines. Rustenburg and Eastern Bushveld chrome and platinum mines. Manganese mines. Iron ore mines. Phalaborwa phosphate and copper mine. Richards Bay heavy mineral sands. Industrial sands. Cement Industry.
HISTORICAL MINE SITES	Mine site with recognized historical significance and heritage value, or site with educational and scientific value in terms of mining geology.	Historical significance. Educational value. Scientific value. Vulnerability. Geotourism appeal. Economic value.	All the old gold, diamond and platinum mines. Pilgrim's Rest. Old Blaauwbank visitor mine. Old Kromdraai visitor mine. O'kiep Copper mine.
FOSSIL SITES	Outcrops that contain well-preserved fossils, and that have an	Scientific value. Vulnerability. Educational value. Palaeo-biodiversity. Economic value.	All the Karoo fossil geosites. Sterkfontein caves. Taung. Makapan's cave.

	outstanding value in terms of stratigraphy, palaeobiology, aesthetics, or else represent a specific ecosystem.		Langebaan.
METEORITE IMPACTS	Site that exhibits physiographic and structural elements produced by a meteorite impact on Earth.	Scientific value. Vulnerability. Geotourism appeal. Cultural value. Representiveness. Economic value.	Vredefort. Tswaing. Setlagole. Kalkkop.
GEOLOGICAL ENVIRONMENTS THAT SUPPORTS AN ECOSYSTEM	Site that, given its mineral or geochemical composition, becomes a refuge for rare or threatened species of wildlife or vegetation.	Link with biodiversity. Precious character. Representiveness. Scientific value. Geotourism appeal. Economic value.	St. Lucia lake. Langebaan lagoon. Nylsvlei. Eastern Free State wetlands.

The geosites were classified as:

- Lithological sites
- Stratotypes or a type section
- Geosystems
- Geological or geomorphological landscapes
- Caves and grottos
- Mineral sites
- Historical mine sites
- Fossil sites
- Meteorite impacts
- Geological environment that supports an ecosystem.

The Geological Survey of Quebec (Verpaelst, 2004) uses a list of geosite selection criteria in which only a single criterion may be sufficient to recognise the outstanding character of a geosite:

- Size
- Accessibility
- Scientific value
- Geotourism appeal
- Educational value
- Historical significance
- Cultural, spiritual and social value
- Economic value
- International significance
- Link with biodiversity
- Aesthetic quality
- Representiveness
- Stratigraphic landmark
- Palaeo-biodiversity
- Rare or unique character
- Precious character
- Vulnerability
- Refuge for rare and threatened species.

The definitions and geosite selection criteria were considered, and by applying them, the most typical examples from South Africa were listed.

3.2.1 WORLD HERITAGE SITES

In 1994, the World Conservation Union (IUCN) inventoried and defined six categories of protected areas. These were:

- Ia: Strict nature reserve
- Ib: Wilderness area
- II: National park
- III: Natural monument
- IV: Habitat/species management area
- V: Protected landscape/seascape
- VI: Managed resource protected area.

It should be noted that the definitions of categories linked explicitly to natural features of the Earth references are made, as "*landscape features or rock exposures*" (Ia); "*geological, physiogeographic...features*" (Ib); "*appropriate natural features include...fossil beds*" (III), "*protected landscape and/or seascape*" (V)

(http://www.unep-wcmc.org/protected_areas/categories/eng/index.html).

As adopted in 1972 by the General Assembly of the United Nations Educational Scientific and Cultural Organisation (UNESCO), the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) has become the world's leading international instrument for the protection and preservation of the most outstanding destinations on Earth. They compiled The World Heritage List (WHL) that ranges from cultural monuments and historic cities through to protected natural areas that span the whole range of tourism destinations and types of tourism, whether business, leisure, youth travel, adventure tourism, eco-tourism or cultural tourism. However, tourism has both positive and negative impacts on cultural and natural heritage. Over-crowding, over-development, pollution or threats to wildlife habitats are some of the associated risks. Nevertheless, tourism also brings much-needed funding, which can be used to help preserve natural and cultural World Heritage Sites (WHS) and empower local communities living and working near those sites. The Protected Areas and the World Heritage Programme forms the basis for World Heritage Sites (http://whc.unesco.org/events/itb/index.htm).

Figure 3.1: Part of the Rammelsberg reduction works,
Rammelsberg World Heritage Site (WHS), Germany

Dallen, Boyd and Boyd (2003:115-119) note that the UNESCO mandate is far-reaching in all aspects of culture, science and education, and that its WHL adds prestige to states, particularly smaller and less affluent nations. In some cases, to have a few WHS even reinforces nationhood and can be a legitimating influence for new governments. UNESCO recognition is also sought for potential financial assistance. Because many countries use it as marketing tool, many more visitor arrivals accrue from it. In 1972, the World Heritage Convention was the primary drive that gave direction to influences in the conservation of the most significant cultural sites. It was followed by the World Heritage Committee whose

primary responsibility is to keep and establish a WHL of cultural and natural properties submitted by countries and considered to be of outstanding universal value. One of the Committee's most important functions is to assist countries with technical assistance in states where resources are insufficient.

The World Heritage Committee has three basic functions:

1. To identify properties, based on states' recommendations, which are to be protected under the Convention, and to inscribe them on the WHL
2. To decide which sites on the WHL should be inscribed on the List of World Heritage in Danger, and
3. To establish how, and under what conditions, the resources in the World Heritage Fund should be used to aid governments in protecting their heritage sites.

Only states that adhere to the Heritage Convention can make nominations to the World Heritage List. A country can nominate a site to the WHL, but it takes a great deal of preparation and a dossier must be submitted for a WHS by the national government accompanied by archival material. Thereafter the Committee will decide whether or not a site merits inclusion in the List. One example was the application by the Sargansenland-Walensee Geopark (Switzerland) to include the "*Glarner Hauptüberschiebung*" (Glarus main thrust) as a WHS. It was turned down at Durban in 2005 because there was not enough preparation done (personal communication, Parks Manager, 2006). Criteria for inclusion in the WHL for natural sites are that the site must:

- Be exceptional examples of major stages in the Earth's natural history, including ongoing geological processes, record of life and geomorphic features
- Exemplify significant ongoing ecological and biological processes, such as those related to marine ecosystems and communities of animals and plants
- Contain natural, phenomena or areas of superlative beauty and aesthetic importance, or
- Contain the most and significant natural habitats for conservation of biological diversity.

The most important aspects are the Sites' superlative characteristics, their high level of representation of places worth protecting and their irreplaceable value to humankind. Management plans must exist for each WHS with regard to entry charges, local tourism business development, the impacts of various visitor types (for example, large tourist groups, visiting scholars, schoolchildren), and potential damage to resources from overcrowding and natural processes. Issues related to information and interpretation, ancillary services (for example, shops, guides, catering) and accessibility must be addressed.

In summary, the key criterion for World Heritage Inscription is that the site has to be of '*outstanding universal value*'. The prestige of inscription encourages heritage preservation by governments and citizens alike, and it may attract financial assistance and technical

support such as heritage conservation projects. Inscription also imposes greater conservation responsibility on the custodian nation, failing which it could be put on the list of World Heritage Sites in danger. Endangered sites are entitled to emergency conservation action by the national and the international community. Once a site has been selected, it is included on the WHL and is protected for future generations against threats of damage caused by natural conditions and human interventions.

The Vredefort Dome and the Greater St. Lucia Wetland (iSimangaliso) are the only World Heritage Sites in South Africa that are based on geology.

3.2.2 DESCRIPTION OF GEOSITES AND GEO-AREAS IN SOUTH AFRICA

SOUTH AFRICA'S GEOLOGICAL 'TOP TEN' (1999), Reimold (2001:20-23) and Reimold, Whitfield and Wallmach (2006:42-62) all give an overview of the most important geosites in South Africa. Because the geology and geomorphology form the basis of the study, a short overview of some of South Africa's typical places of geological interest (geosites/geo-areas) will be given. A comparison of overseas geosites will follow. The best known top 15 geosites/geo-areas in South Africa could be better described as geological attractions. A short description of the most stunning geosites is given below:

1. **The Barberton Mountainland**
   Within the picturesque mountains of the Barberton area, 3 500 million-year-old rocks preserve evidence of the birth of the continents, some 1 000 million years after the formation of the planet. The largely volcanic 'greenstones' include komatiites (named after the Komati Valley, where they were first identified in 1969). These rocks formed from the hottest-known volcanic lavas (magma temperature about 1 600°C) ever to have erupted onto the Earth's surface.

2. **The Witwatersrand Goldfields**
   The Witwatersrand Basin is, by far, the world's largest gold deposit, having yielded about 50 000 tons of the precious metal, or a third of all the gold mined so far on Earth. The gold was transported and deposited in conglomerate reefs by high-energy river systems about 2 750 million years ago.

3. **Evidence of early life in dolomites in sediments of the Vaalium Era**
   Silica-rich chert layers in the greenstone belts of eastern South Africa contain traces of the earliest life forms on Earth - blue-green algae dating back to 3 500 million years ago. Large parts of northern and northwest South Africa are covered by dolomites, which preserve the most extensive occurrence of stromatolites in the world. These dome-shaped structures are the fossilised remnants of algal colonies that flourished along the margins of the Transvaal Sea about 2 500 million years ago.

4. **The Bushveld Complex**

The Bushveld Complex, the world's largest layered igneous complex, is one of the geological wonders of Planet Earth. The Complex is the world's greatest resource of the platinum-group metals, (chromium, vanadium, and titanium), which occur in layers, or 'reefs', extending over hundreds of kilometres. Eighty per cent of the world's platinum, and 75 per cent of the world's chromium, are found here.

5. **The first 'red beds'**

Sedimentary rocks, known as 'red beds', because of their colour (caused by iron oxides), provide the first evidence for substantial quantities of oxygen in the Earth's atmosphere. The Kalahari Manganese Field, which contains over 50 per cent of the world's manganese reserves, and the large iron-ore deposits at Sishen (Northern Cape Province) and Thabazimbi (Limpopo Province) also owe their origin to the first appearance of free oxygen in the Earth's atmosphere.

6. **Diamonds from the deep**

Although diamonds have been recovered from alluvial gravels for thousands of years in other parts of the world, their true source was recognised only in 1871 at Kimberley. The diamond-bearing rock, named kimberlite, occurs in narrow pipes that were the feeders to explosive volcanoes. Only a small fraction of the hundreds of pipes found in South Africa contain enough diamonds to warrant mining, but those that are worth exploiting have produced some of the world's largest stones, including the magnificent 3 106-carat Cullinan diamond from the Cullinan Mine (previously known as the Premier Mine) near Pretoria.

7. **Great balls of fire**

The World's biggest and oldest meteorite impact structure is known as the Vredefort Dome. The Vredefort crater is the largest verified impact crater on Earth. The asteroid is estimated to have been as big as Table Mountain, and its calculated diameter was about 380 km. It hit the Vredefort area approximately 2 023 million years ago. Because granite is exposed in the centre of the structure and because of its shape, the descriptive name of Vredefort Dome was accepted for the area enclosed by the semi-circular range of hills to the north-west. In 2005, the Vredefort Dome was added to the list of UNESCO World Heritage Sites for its geologic interest. Today it is the country's 7th World Heritage Site).

8. **The Tswaing Meteorite Impact Crater**

Situated about 40 km north-northwest of Pretoria, Tswaing is one of the world's most easily accessible and best-preserved meteorite impact craters. Owing to the presence of volcanic rocks in the vicinity, the structure was previously thought to be volcanic in origin, but investigations of the material filling the crater have shown without a doubt that it marks the site of a meteorite impact (astrobleme) a mere (in geological terms) 220 000 years ago.

9. A continent-wide eruption

The onset of the break-up of the supercontinent Gondwana about 180 million years ago led to a period of spectacular volcanic activity, as molten magma rose through fractures in the Earth's crust and spread across the surface of South Africa. In places, the pile of lava flows approached 2 km in thickness. Remnants of these flood basalts can be seen today in the Drakensberg Mountains.

10. Permo-Triassic Area

Some 240 million years ago, before the break-up of Gondwana, the central parts of South Africa formed a low-lying basin with lush vegetation, where ancestors of the dinosaurs and modern mammals roamed. The Karoo region today is the repository of the most impressive fossil record of these mammal-like reptiles and early dinosaurs, providing palaeontologists around the world with vital clues to the evolution of the dominant life-forms on Earth.

11. Cradle of Humankind

The discovery of a fossilised child's skull at Taung in the 1920s revolutionised the study of palaeo-anthropology. Australopitheticus africanus inhabited South Africa some 2.5 to 3.5 million years ago. There are several world-famous hominid ('Early Man') sites in the Cradle of Humankind, suggesting that southern Africa may have a strong claim to the title "*Cradle of Humankind*".

12. Pilgrim's Rest

The picturesque mining village of Pilgrim's Rest was declared as a National Monument in 1974, and is now a living museum. Mines here were part of the Pilgrim's Rest-Sabie Goldfield, extending from Bourke Luck in the north to Elandsdrift in the south. Pilgirm's Rest was painstakingly restored in its entirety and is now one of the most perfect examples of a restored gold mining town. It is an open-air, and indoor, museum of mining memories, the perfect example of a prospector's town founded during the romantic days of the first gold rush of 1873. More than 155 metric tons (five million ounces) of gold, and a significant amount of silver, have been won from ore deposits in the Pilgrim's Rest Goldfield over more than a century of mining. An appropriate Digging Site Museum was erected at the southern end of the town. The old reduction works is not open to the public, but it could be restored and opened for visitors. A new event created was the "*2005 World Gold Panning Championships*" that was first hosted in Pilgrims Rest from the 17-25 September 2005. It is now an annual national event.

13. Cango Caves

The Cango Caves are one of the world's great natural wonders. They are one of the oldest natural attractions in South Africa, part of which has become the biggest show cave in Africa. The Caves are a subterranean wonder world of great physical beauty.

Within the cave system, there is a fabulous collection of speleothems that form part of the bizarre dripstones formations. There are four cave systems: Cango One, Two, Three and Four of which the last three are not open to the public. The first sequence of caves, Cango One, stretches for 762 metres and was developed and opened for tourists. There are innumerable dripstone formations in the main cambers and antechambers. Some 35 meters from the entrance, there is a 20-meter descent into the largest of the chambers, the Van Zyl's Hall. The highest dripstone, a 12.5-metre column, is in Botha's Hall. It terminates in the Devil's Workshop and Banqueting Hall. The main aesthetic attractions of Cango One, and therefore tourist appeal, of the cave lie in the large size of its chambers, and in the spectacular speleothems. The narrower passages, especially the Devil's Chimney, at the far end of Cango One provides a further attraction for the tourist who enjoys some physical exercises. Unfortunately, physical disturbance, noise and lampenflora have an adverse impact on the cave. The need for geoconservation is being recognised so that future generations of tourist and scientists could also enjoy them. A new museum complex and interpretive centre that blends in with the natural surroundings was opened in 1999.

14. Kruger National Park

Research on the geosites in the Park was done by the author during the last four years. There are excellent examples of migmatites that show how the Earth's crust was formed about 3.5 million years ago. Other examples of geological interest are sedimentary structures and fossils near Punda Maria, the intrusive rocks of the Timbavati Gabbro, the volcanic rocks of the Lebombo Mountains and the weathering products such as the potholes at Red Rocks and the granite kopjes in the southern part, north of Berg-en-Dal camp.

15. Table Mountain

It is a well-known landmark that every tourist notices in Cape Town. The sandstone formation that resembles a table gave rise to the name (http://www.mintek.ac.za/pubs/geobook/Top10.htm; Deep impact – the Vredefort Dome. 2005; http://www.hartrao.ac.za/other/vredefort/vredefort.html; Schutte, 2000a, 2003, 2004a, 2004b, 2006a, 2006b, 2007, Schutte and Whitfield, 2002).

3.2.3 DESCRIPTION OF GEOSITES AND GEO-AREAS OVERSEAS

All tourists that go on an international holiday will often see and experience places of geological interest, and geological landmarks, during their travel. There are numerous geosites in the world such as Yellowstone, Hawaii, Vesuvius, Etna and Pompeii to mention merely a few of the better known examples. World Heritage Sites (WHS) are examples of other geosites like the Jungfrau-Aletsch-Bietschhorn (Switzerland), Messel Pit Fossil Site (Germany), Mount Fuji (Japan), Australian fossil mammal sites of Riversleigh/Naracoorte and Ayres Rock (now called Uluru) (Australia), Los Glaciares (Argentina), Waterton-Glacier International Peace Park (Montana, U.S.A., and Alberta, Canada), Banff National Park

(Canada) and Sagarmatha National Park, including Mt. Everest (Nepal). World Heritage Sites that show mining history are Røros (Norway), the historic centre of the town of Diamantina (Brazil) and the mines of Rammelsberg, with the nearby historic town of Goslar (Germany).

The Galapagos Islands (Ecuador) is a special case because the islands and the surrounding marine reserve have been called a unique '*living museum and showcase of evolution*'. Located at the confluence of three ocean currents; the Galapagos are a 'melting pot' of marine species. The terrestrial area of the site is 766,514ha, comprising almost 97% of the land area of the archipelago where geosites can only be visited when they are accompanied by tourist guides (http://whc.unesco.org/en/285/). Dorset and the East Devon Coast (UK) comprises approximately 155 km of undeveloped coastline and countryside. The cliff exposures along coast provide an almost continuous sequence of rock formations spanning the Mesozoic Era, or some 185 million years of the Earth's history (http://whc.unesco.org/en/282/). Tongariro National Park (New Zealand) has active and extinct volcanoes, a diverse range of ecosystems and some spectacular landscapes (http://whc.unesco.org/en/283). Oman is called the biggest open-air geological museum in the world. The town of Miri (Malaysia) has an impressive geosite exhibition near the road to the airport (http://www.ecomedia-software.com/airport/airport.htm).

Geosites are well-represented in National and World Geoparks overseas (c. f. 4.5.1, 4.5.2).

3.3 GEODIVERSITY

James, James and Clark (2006) believe that "Geodiversity is the link between people, landscape and their culture, and it is the variety of geological environments, phenomena and processes that make those landscapes which provide the framework for life on earth. An understanding and recognition of the importance of geodiversity challenges the more conventional view of geology where it is seen as a destructive science or as a resource to be use". Serrano Cañadas and Ruiz Flaño (2007:390) define geodiversity from a theoretical point of view as "the variability of abiotic nature, including lithological, tectonic, geomorphological, soil, hydrological, topographical elements and physical processes on the land surface and in the seas and oceans, together with systems generated by natural, endogenous and exogenous and human processes, which cover the diversity of particles, elements and sites". Kozlowski (2004, as cited by Serrano Cañadas and Ruiz Flaño, 2007:389-390) believes that geodiversity is the natural variety of the Earth's surface, referring to geological and geomorphological aspects, soils and surface waters, as well as to other systems created as a result of both natural (endogenic and exogenic) processes and human activity.

Geodiversity is a very a useful concept for geoconservation and management of abiotic heritage. The term can be applied to any particular region or country. Abiotic elements must be incorporated into the local policies of sustainable development and the assets of natural

resources. The concept is suitable for a geo-ecological management of natural protected areas. Geodiversity is closely related to the concepts of geoconservation, natural heritage, geoheritage or legal entities like geoparks, protected landscapes, natural monuments or geomorphosites. Geodiversity is the diversity of minerals, rocks (whether 'solid' or 'drift'), fossils, soils, landforms and geological processes that constitute the topography, landscape and the underlying structure of the Earth. The degree of geodiversity depends upon the range of geological and paleontological features relative to the region or area discussed. A relatively higher (richer) geodiversity occurs in areas that are characterised by the presence of many different geological structures, particularly if these belong to differing geological eras. A relatively lower diversity occurs in areas that are characterised by large tracts of similar geological structures, for example the Earth's deserts (http://en.wikipedia.org/wiki/Geodiversity).

The Nordic Council of Ministers prepared a leaflet about geodiversity in 2003 in Swedish. The leaflet was prepared by a group of Earth science professionals established by the Council. The aim of the text was to introduce the term geodiversity into Nordic nature conservation. It is based on the report "*Geodiversitet i nordisk naturvård*" (Geodiversity in Nordic nature management), written in Swedish (ISBN 92-893-0572-2000). It states that geodiversity allows the understanding of variations seen in rocks, superficial deposits and landforms, and in all the geological processes that built up or eroded the Earth's crust. Further, the leaflet points out that there has been far less attention paid to geodiversity, but that geological diversity is a vital pre-requisite for biological diversity. Plants and animals, bedrock and deposits, are elements of the ecosystem. Plants and animals are the living (biotic) elements, while bedrock, deposits, water and wind form the non-living (abiotic) elements. The writers of the leaflet note that while geodiversity is crucial in forming the basis of habitat quality, geodiversity has an impact on land use, economic life and recreation, and therefore, on the fabric of society. They conclude that it is up to everyone to conserve this diversity, and that all activities should take account of the diversity of nature, both biodiversity and geodiversity (http://www.sgu.se/hotell/progeo/pdf/GM_ENG.pdf).

3.3.1 VALUING GEODIVERSITY

Gray (2004:65, 126,-127, 162, 164-165, 168) is of the opinion that it is important to conserve and manage the geodiversity of this planet. Discussing the many values of geodiversity and the reasons for treating the physical basis of our environment with care and respect can achieve this. There are two main types of values in the Earth's physical resources. The first is the economical value of exploiting the resources of the planet, and the second is the cultural or heritage value in protecting the aesthetic and research resources of the physical environment. Other authors expanded the classification into four groups:

- Intrinsic value
- Cultural and aesthetic value
- Economic value

- Research and educational value.

Research and education values are, in many ways, the most important values. The physical environment is a laboratory for future research and this is often the only site that provides a reliable test for geological theories. When physical systems are damaged the ability to undertake further research and teaching regarding those systems may be lost. The study of geological record is of utmost importance when deciphering the history of the Earth over the last 4 600 million years. Therefore, this geological rock record has an enormous value. In all spheres of geology, research plays an important role.

The human impacts on geodiversity are:

- Complete loss of an element of geodiversity
- Partial loss or physical damage
- Fragmentation of interest
- Loss of visibility, or invisibility
- Loss of access
- Interruption of natural processes and off-site impacts
- Pollution
- Visual impact, and
- Underground mining that can have serious effects on the geoscape.

The benefits offered by geodiversity together with the social functions of geodiversity are discussed by Guthrie (2004) and are summarised in Figure 3.2.

There is an ever-increasing pressure on the resources by recreation and tourism, especially in parks, caves systems, dunes and by rock climbing. "*On the other hand, tourism brings people into contact with natural or semi-natural environment and may lead to a, more appreciative public willing to support efforts to reduce the threats and conserve the resource*". Removal of geological specimens is yet another threat to geodiversity. The best way to protect fossils is, in many cases, by placing them in museums. Over-collection of minerals or fossils can lead to the destruction of the site. Strict control is necessary. Even the much-less destructive research and educational activities can damage sites. In Tasmania, special measures are taken to manage coring and the restoration of the core holes. But worldwide, the most important threat to geodiversity is ignorance. "*A lack of survey information, documentation and designation of geoheritage has resulted in loss or degradation of sites and landscapes via inappropriate development in the past and remains a threat in many parts of both the developed and developing* world. *...As a result of this lack of information, geological conservation measures are often lacking, including integration into important land-use planning legislation, policy and practice*". In conclusion, Gray (2004:168) is of the opinion that there should be a greater understanding of the planet's geodiversity, its value, the threats to its existence, and of the importance of geoconservation and management.

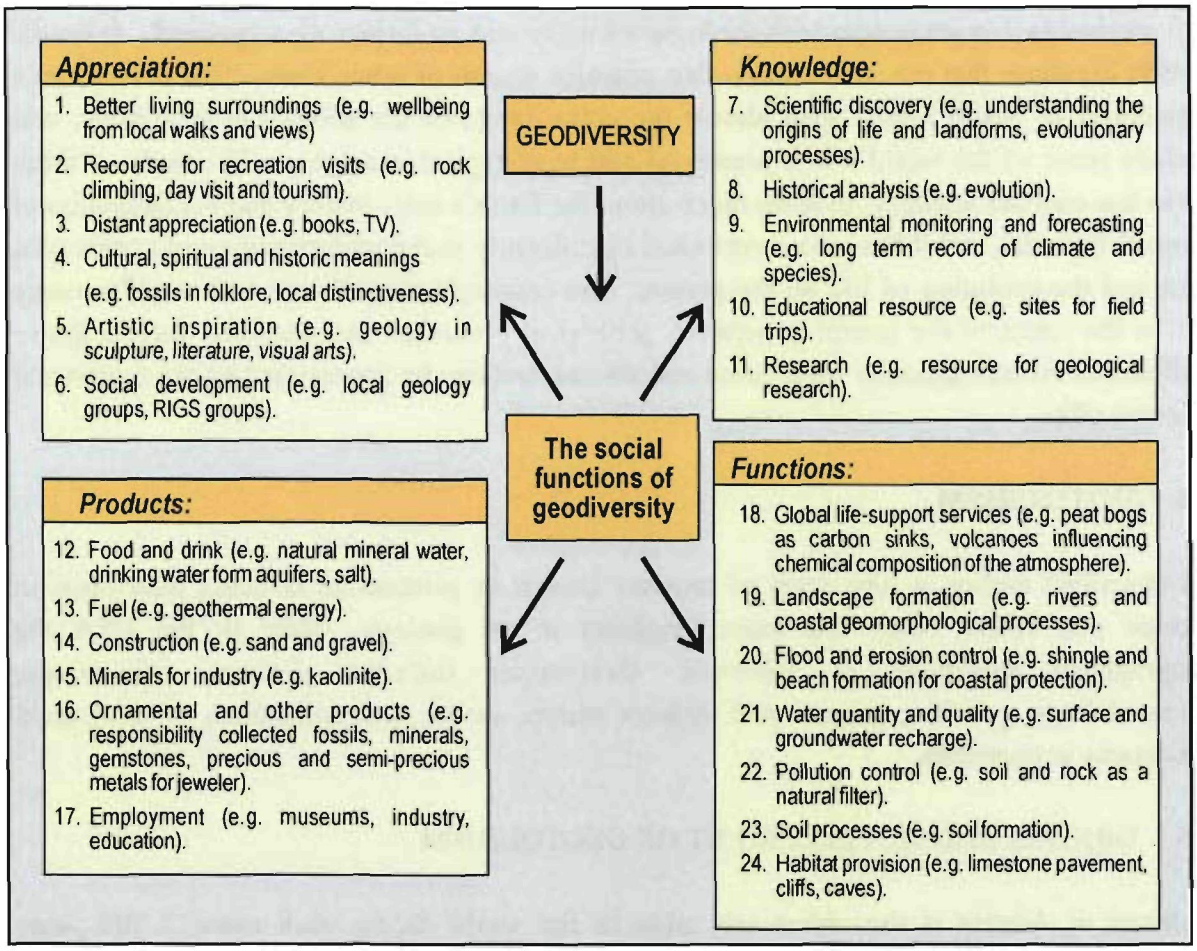


Figure 3.2: The social functions of geodiversity (Guthrie: 2004, adapted from De Groot: 1992, English Nature: 2002 and Gray: 2003) (http://www.geoconservation.com/conference/followup/presentations/guthrie.htm)

3.4 HERITAGE AND GEOHERITAGE

Herbert (1995:1-2) states "*Heritage places are products, or perhaps constructions of history. They owe their distinctiveness to the past. That distinctiveness remains recognizable but is often used and presented in new ways. Much of this presentation is closely related to the growth of leisure and tourism. Heritage places have been part of the round of leisure-time visitors and tourists...Heritage places, leisure and tourism are interrelated, though not necessarily interdependent. Heritage places have autonomous roles as places of formal education, research and conservation. Many people, though probably a minority, visit heritage places in their leisure time as tourists*". Thus, heritage tourism can be regarded as a form of tourism in its own right.

Geological heritage (geoheritage) means the heritage of geology and the various products thereof. Duk, Sumathokina and Gorb (2006:19-20) define geoheritage as "*the system of values embodied in the geologic monuments and objects created by nature that are*

[p]reserved by human generations for human society and its further development". Edwards (1999: iii) states that our geoheritage also contains wealth of other kinds. The diverse rock formations of South Africa span almost the entire range of the geological time scale, and include some of the world's best-preserved and most typical examples. The study of these rocks has enabled scientists to learn much about the Earth's early history and the formation of mineral deposits, and it has also contributed significantly to the understanding of continental drift and the evolution of life on the planet. The country's magnificent and varied scenery that is the result of the interplay between geological processes and climactic factors draws millions of visitors annually from home and abroad, and can be appreciated by the tourist and scientist alike.

3.5 GEOTOURISM

As described earlier, a new form of tourism known as geotourism is being developed in Europe and China where the main emphasis in on geology, while in the USA the geographical viewpoint is followed. Geotourism includes geology, mineralogy, palaeontology, geosites, present and defunct mines, caves, and collections of geological specimens in museums.

3.5.1 ORIGINS AND DEVELOPMENT OF GEOTOURISM

Hallstatt in Austria is the oldest salt mine in the world dating back some 7 000 years (http://www.salzwelten.at/cont/salzwelten/salzwelten_home.aspx). However, Wieliczka Salt Mine is the only site in the world where mining has taken place continuously since the Middle Ages. The Wieliczka Salt Deposit, Poland, belongs to a Miocene salt-bearing formation that originated 15 million years ago. It has been developed on nine levels and its original excavations (longitudinal, traverses, chambers, lakes, as well as lesser and major shafts) stretch for the total of 300 kilometres, reaching a depth of 327 metres. They illustrate all the stages of the development over time of mining technology. The history of the mine is a reflection of this progress of mining technology, development of work organisation and management, and the birth of legislation in industry. Initially, salt was acquired from brine springs and through heating the brine vaporisation of water took place and salt subsequently recovered. Later, a salt deposit was discovered, and its excavation with primitive tools began.

Already in the 14th century, as the site of salt production, it was shown to privileged visitors of the royal court. Later as a vast underground labyrinth of chambers and passages, it was admired for its specific charm and mystery. Towards the end of the 15th century, as historical documents claim, tourist activity began in the mine. Although the groups were small and consisted solely of the elite of the contemporary world, the goal of their visits was to see and to learn. The geosite was unique because it was almost invisible from the surface and could only be seen from the subterranean inside where it displayed its beauty in all its splendour. During the 16th century, the period of Polish humanism, the role of Wieliczka as

a tourist site began to grow as visits to the mine concentrated on the culture and learning, neglecting the organisational aspects. Only members of the upper classes could admire the mining and resultant excavations, and each time the explicit approval of the king was necessary. Even though the mine's authorities saw the tourists as intruders dabbling with the production cycle, this is where geotourism started. In the 16th century, the Wieliczka Salt Mine became one of the largest business enterprises in the then-modern Europe. At present, there exists a well-planned tourist route. Guides are expertly trained employees of the mine (http://whc.unesco.org/sites/32.htm).

3.5.2 DEFINITIONS AND CONCEPTS OF GEOTOURISM

Geotourism has been used mainly by geologists and geographers in the last few years for a new emerging market segment in tourism. Dowling and Newsome (2006:1-2) point out that geotourism is part of a spectrum of definitions. This is shown in Figure 3.3.

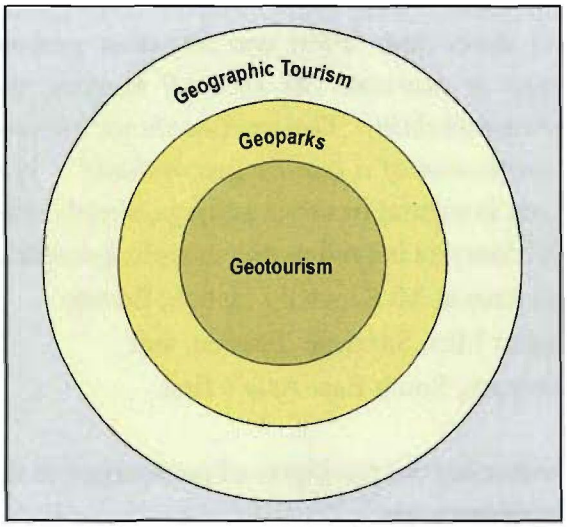


Figure 3.3: The existing spectrum of geotourism (Dowling and Newsome, 2006:1)

Stueve, Cooke and Drew (2002:1) give a broad definition of geotourism from a geographical point of view that encompasses a wider geographical, socio-economic and cultural context under the umbrella of geographic tourism. Frey, Schäfer, Büchel and Patzak (2006:97-114) embrace geotourism at the level of social and community development according to the concept of the geopark.

At the "*3rd International UNESCO-Conference on Geoparks*", Osnabrück, Germany, 22-26 June 2008, Dowling (2008:10-11, 16) defined geotourism as:

"Geotourism is sustainable tourism with a primary focus on experiencing the earth's geological features in such a way that fosters environmental and cultural understanding, appreciation and conservation, and is locally beneficial".

In the context of geotourism several definitions were given:

- Geology - is the study of the Earth
- Geoheritage - earth attributes which are valued
- Geoconservation - conserving the Earth's valuable features
- Geosite - a site or place identified for geological tourism development
- Geopark - a geological region developed for tourism
- Geotourism - geological tourism that is sustainable, educative and locally beneficial.

The five 'C's of geotourism are:

1. Creating authentic geotourism product
2. Conserving geoheritage
3. Community building
4. Communicating geo heritage, and
5. Cooperating with a range of stakeholders.

Dowling (2008:20, 25, 51) states that, "*First and foremost, geotourism is a niche form of tourism, that is, it is a type of tourism. As with all modern tourism development, it is grounded in the concept of sustainability. Geotourism should stimulate local socio-economic development through the promotion of a quality geoproducts*". In the case of geoproducts, geotourism can be carried out in natural or urban settings, simply wherever the focus is on the geological environment. If Malaysia is used as an example, geotourism occurs:

- In a World Heritage Area at Mt Kinabalu, Sabah, Borneo
- At a roadside cutting at Miri, Sarawak, Borneo, and
- In the Langkawi Geopark, South East Asia's first.

Saayman (2006:16-17) summarises the principles of geotourism as those that:

- Do not degrade the georesource
- Provide long-term benefits
- Provide fist-hand participatory and enlightening experiences
- Involve education among all parties
- Encourage all-party recognition
- Involve acceptance of the georesource on its own terms, and in recognition of its limits
- Involve understanding and involve partnerships, and
- Promote moral and ethical responsibilities.

In the brochure of the "*Inaugural Global Geotourism Conference 2008*" that was held in the Esplanade Hotel, Fremantle, Western Australia, from 17-20 August 2008, the organisers state that "*Geotourism describes the resources, activities and management of visitor activity centred on rock exposures, landforms and fossils in a wide variety of natural landscapes. The term geotourism is essentially taken to mean 'geological tourism'. It encompasses tourists looking at natural landscapes including the landforms, rocks and processes that*

shaped them over time. The Earth's geological wonders have always fascinated people and are a fundamental part of a culture's identity. Many also form the basis for the establishment of protected areas and World Heritage Sites. From Iguazu Falls to the Grand Canyon, examples abound of outstanding geological features which have attracted visitors from time immemorial. It is not just spectacular landforms either, but also the processes which have shaped the Earth. So tourists also visit sites where glaciers are in action, volcanoes are active, sand dunes are sculpted and rivers are causing erosion. It is the understanding of this 'form - process relationship' that is important in geology, and by extension, geotourism. Through geotourism the relationship is explored and the consequences of geological landforms and activities on our lives are more fully understood" (http://www.promaco.com.au/2008/geotm/). Dowling and Newsome (2006:4-6) conceptualised the nature and scope of geotourism as shown in Figure 3.4.

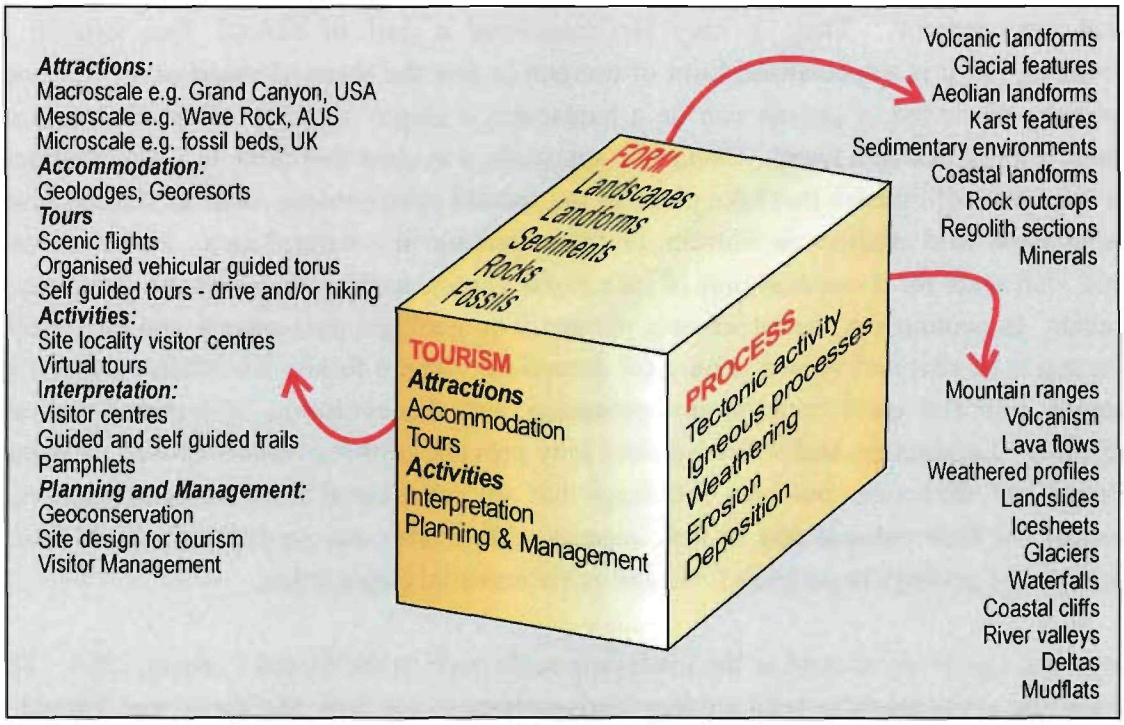


Figure 3.4: The conceptualisation of the nature and the scope of geotourism (Dowling and Newsome, 2006:5)

The three main components are form, process and tourism with its various sub-divisions. Form describes the various geological landforms, rocky outcrops and materials. Landscapes of geotourism interest are mountain ranges, rift valleys, great escarpments, volcanoes, karst landscapes and arid areas. Within a landscape, there may be characteristic landforms or an array of landforms (for example, volcanic, glacial or fluvial geomorphic features). A hierarchy of features of geotourism interest also exists. They may range from individual landforms through to rock outcrops, rock types, sediments, soils and minerals.

Process can be conceptualised in relation to how the dynamic Earth is formed. It involves

geologic and geomorphological activity like volcanic eruptions, the action of running water, sediments that are being weathered, liberated and moved from one site (eroded and transported) to another (deposited).

Superimposed on these is the human dimension that is experienced as tourism activity. Visits to geosites may be in the form of self-guided driving, hiking trails, patronage of viewpoints, bus tours, boat trips and scenic flights. Geosites that are selected and developed for geotourism may have accommodation facilities and attendant infrastructure. Services designed to enhance the visitor experience could be purpose-built access roads, interpretive visitor centres, guided geotourism and virtual tours (IMAX cinema, for example). This three-pronged approach is a very useful concept on which geotourism can be build.

Dowling and Newsome (2006:6-8) explain that the bulk of geotourism takes place in a natural environment. Thus, it may be considered a part of natural area tourism and ecotourism, but it is a specialised form of tourism in that the focus of attention is the geosite. As already discussed, a geosite can be a landscape, a single or group of landforms, a rock outcrop, a fossil bed or a fossil. Using this approach, it is clear that there is a clear distinction from the forms of tourism that take place in the natural environment, such as visiting natural areas to view wild animals or flowers, or for recreation in a natural area. However, many people visit sites for a combination of its natural values, some which may be geological in character. In geotourism, the attention is primarily on geologic phenomena, and the objective of the trip is to visit and view a geological attraction. Where fossils are involved, there is an extension into the early evolutionary processes and the evolution of humans and other vertebrates. Landscapes and a few geosites may provide aesthetic values as well as cultural, historical and adventure tourism. Buildings that are constructed from rocks and stones are important for their cultural and historic aspects. Mine sites can provide an insight into the importance of geology in people's lives and environmental degradation.

Geotourism can be developed at the landscape scale such as the Grand Canyon, USA. There may also be visits made to road cuttings and quarries to see how the Earth was formed. In South Africa, the Karoo fossils are a focus of attention. Visitors can view fossils *in situ* and see other geological and geomorphological features in the area. In this example, the fossils are found in clayey and sandy sediments of the Karoo Supergroup. These sedimentary rocks show impressions of leaves that are preserved, in tracks and burrows, shells and skeletons of reptiles. In conclusion, it could be claimed that "*Geotourism is an option for all countries and all parts of the world*".

Dowling (2008:37-39, 51) believes that understanding geotourism has the implication that:

- Geotourism has a strong educative component in which geoscientific knowledge is communicated to the public
- This may be accomplished through protected and interpreted geosites, museums, information centres, trails, guided tours, school class excursions, popular literature, maps, educational materials and displays, seminars

- The study of geotourism also fosters scientific geological and landscape research.

By appreciating geotourism, the following is achieved:

- The fostering of a connection with the earth such that people begin to feel part of the earth's abiotic landscape, in much the same way as they are attracted to its biotic components.
- The interactive interpretation and education that involves both the tourist (guest), as well as the local people and community (host).

Geoconservation principles are:

- To conserve significant geological features and explore and demonstrate methods for excellence in conservation
- To allow for the fact that certain geological features or landforms should not be allowed to be developed as tourism products because of the high value they have as natural attributes.

Emerging partnerships characteristics are that:

- Geotourism is a natural advocate of partnerships
- All partnerships have a number of common elements including a shared vision, shared risks and shared benefits
- Such partnerships can take many different forms including amongst industry, government and non government organisations
- Community participation is the essence of most partnerships.

Frey, Schäfer, Büchel and Patzak (2006:97-98) use Frey's definition of 1998 as follows: "*Geotourism means interdisciplinary cooperation within an economic success-orientated and fast-moving discipline that speaks its own language. Geotourism is a new occupational and business sector. The main tasks of geotourism are transfer and communication of geoscientific knowledge and ideas to the general public.*" Thus, they suggest that geotourism is based on the interaction between politics, geoscience, universities and the tourist industry. A regional value and sustainable use achieves a quasi-balance by using the potential of the landscape and its established infrastructure. The sustainable protection and safeguarding of the geoheritage of a region is the principle behind geotouristic activities. The above-mentioned actions were very successfully applied in the Volcano Eifel Geopark in Germany by bringing geoscientists and politicians together in addition to the effective marketing of the geopark.

Pforr and Megerle (2006: 118, 120-121) state that geotourism "*embraces the identification of geo-objects, landscape marketing and interpretation of the geoheritage of a region in a sustainable manner*". Collaboration, co-ordination, effective communication and transfer of know-how are necessary to achieve sustainability outcomes. Geotourism is also a vehicle to promote geoconservation in a sustainable management regime. There is also a symbiotic

relationship between tourism and geoconservation and its potential to contribute to the sustainable development of a region. Geotourism should be consistent with the principles of sustainable development, balancing economic, ecological and social aspects as an integrated whole. It should be viewed as part of a holistic management approach to the broad field of geological and landscape history, including its interconnectedness with fauna and flora, the cultivated landscape, and present use. Pforr et al. (2006: 121) conclude that "*Sustainability and environmental education are seen as integral parts*".

At the Second International Conference on Environmental, Cultural, Economic and Social Sustainability in Hanoi and HaLong Bay, Vietnam, James, James and Clark (2006) stated that that geotourism was an extension of activity - or nature-based tourism, where landscapes and geological objects and processes were integral to the tourism experience, and were also linked politically, socially and economically to the sustainable development of an area of special geoscientific interest.

The principles of geodiversity, geoconservation and geotourism are most ably demonstrated and realized in the UNESCO-supported Global Geopark Network that is currently expanding across the planet. In Australia, there is an understanding, knowledge and interest in sites of geological interest such as the Great Barrier Reef, the Uluru monolith or the Flinders Ranges. Such areas as these are potential locations for geoparks in the future.

Dowling (2008:52) state that the future development of geotourism's includes:

- Refining the definition of 'geotourism
- Empowering local people
- Emphasising quality products and service
- Marketing the 'Geopark' brand
- Introducing guide certification
- Recognising geotourism potential
- Minimising impacts through planning
- Recognising the importance of interpretation.

In conclusion, Dowling (2008:69) believes that:

- 'Geotourism' is the new ecotourism
- Geotourism will continue to grow rapidly and gain an even greater share of mainstream tourism
- Its growth is predicated on environmental sensitivity, community well-being and local economic benefits.

Van Tonder and Wallmach (2001:4) states that "*Geotourism is a major facet of special interest and educational tourism and focuses on the natural resources by means of which the natural history, geology, palaeontology, ecology, prehistory and cultural heritage of an area can be interpreted presented in a multi-disciplinary way to people of differing levels of*

knowledge. Geotourism seeks to combine conventional tourism with learning through the development of thematic itineraries and the experts to provide information and context through interaction with clients. Although special interest tourism is one of the fastest growing tourism markets in oversees countries". Mieczkowski (1995:459) sees educational tourism as a component of alternative tourism. Thus, geotourism is not a major facet of special interest and educational tourism as postulated by Van Tonder and Wallmach (2001:4) above. To arrive at this conclusion, however, a sufficiently informed background of tourism and tourism literature to define geotourism precisely must be postulated. Specialist interest tourism can be for any discipline, not only geotourism. Van Tonder and Wallmach (2001:4) also include prehistory and cultural heritage as part of geotourism.

The researcher agrees with Mieczkowski (1995:464-465) when he says that, "*I do not accept the inclusion of human made elements in ecotourism*". Because archaeological, historical and anthropological resources are man-made, they are not included in the definition of ecotourism by Mieczkowski. Thus, the same will apply to geotourism, that prehistory and cultural heritage are not part of geotourism. In this study, the author agrees that geology should form the basis for geotourism. The tourism component of geotourism involves visitation to geosites for the purposes of passive recreation, engaging in a sense of wonder, appreciation and learning. Thus, geotourism is a distinct sub-sector of natural area tourism. South Africa is emerging as a very popular tourism destination and geotourism is the newest addition. Mining tourism will be included in the definition of geotourism in the country.

According to Reimold (1999:10-11) a potential new branch of ecotourism is geotourism. Yet this is not true because geotourism is a new branch of tourism. The importance of geology with regard to conservation is emphasised. Reimold (2001:20-23) discusses geotourism in South Africa in an article: "*Tourism ... Ecotourism ...Geotourism! A case for a new national tourism strategy*" in Geobulletin. However, a clear definition and explanation of tourism, ecotourism and geotourism is not given. It is only mentioned that the term ecotourism is focusing on and capitalisation from the environment and is targeting the tourist, whilst, at the same time sustaining the environment. This is a completely wrong statement because the economic and social dimensions of sustainability are not being described. Another point is that there is no explanation of the relation between tourism, ecotourism and geotourism. From the title, it may be assumed that ecotourism is the result of tourism and that geotourism is the result of ecotourism. Again, this is untrue because ecotourism is essentially 'green' tourism, while geotourism comprise elements of ecotourism as well as mining components, geoheritage, geological museums and geomorphology.

Mining heritage tourism is also part of geotourism. The theme parks of Gold Reef City, Kimberley Diamond Theme Park and the newly announced Platinum Park all have a central theme of mining. Numerous examples of mining heritage are presented in World Heritage Sites and mining museums in Europe, Canada, USA and Australia. A detailed research of all the tourism literature was undertaken to form a sound understanding and background of all the principles and concepts. The geology of the relevant geosites was also studied.

Comparing various forms of tourism and applying it to geosites could establish the link between geology and geotourism established from the literature. Thus, a new form of tourism, known as geotourism, is developing in Europe and North America. Geotourism includes geology, geomorphology (including waterfalls), mineralogy, palaeontology, geosites, present and defunct mines, caves, collections of geological specimens in museums and open-air museums.

From Internet research, it was established that geotourism is built on the following pillars:

- Geological outcrops
- Geomorphology
- Caves
- Visitor mines
- Museums with geological exhibitions
- Geoscientific institutions for research
- Heritage/visitor's centres
- Geologists' residences (when they have a collection of rocks/minerals)
- Commemorative plaques/monuments.

Geological outcrops and geomorphology is one of the pillars of geotourism; but at the same time, they are also part of ecotourism. This is the only part of ecotourism that overlaps with geotourism. Therefore, they can both be classified as forming part of nature-based tourism. From the above-mentioned discussion, it will be noted that only geological outcrops and geomorphology form part of ecotourism as well as of geotourism. There are also mining and mining heritage components in geotourism (Gold Reef City, Cullinan, Kimberley and Pilgrim's Rest). To arrive at a workable definition of geotourism, a starting point will be part of the geotourism mission statement for the Geotourism Interest Group (GIG) of the Geological Society of South Africa (GSSA): "*South Africa's fascinating geological formations span almost the entire range of the Earth's history, including some of the world's best known, well-preserved, most stunning and typical examples...unique and diverse rock formations and landscapes*". The researcher (adapted to Schutte: 2000b) proposes that:

"Geotourism is a conglomerate of all the geosciences elements. It includes geology, geomorphology, mineralogy, palaeontology, geophysics, geosites, present and defunct mines, collections of geological specimens in museums, other geological museums, geology in protected areas, World Heritage sites and open-air geological museums. It should be appreciated and used by visitors, tourists, scholars and students and the way the geological sites were formed".

Smit (2003:20-58) describes the geotourism supply and possible geotourism development in South Africa. This was the first attempt to complete proper geotourism research in South Africa.

Mendelsohn and Potgieter (1986:10-124) prepared a guide to the most important geosites of the Central Witwatersrand gold fields for the centenary commemoration of the discovery of gold on the Witwatersrand in 1886, at the Annual Congress of GSSA. In the publication a short history of the Witwatersrand Goldfield, a guide to the geology of the Johannesburg area and a description of Crown Mines, the first South African gold mining giant, are given. It is followed by a description of the geosites and a geological map, as well as a list of 100 places of cultural, historical, architectural and natural values. This was the first publication of its kind in the country. Toens (1995:1-72) subsequently compiled the "*South African National Geological Site and Monuments*" report for GSSA. However, it was never implemented.

Viljoen and Reimold (1999:1-193) describe some of the most typical geosites of South Africa's geoheritage. Their work is a guide to, and explanation of, some of the country's most outstanding and 'representative' geological features and geosites, as well as of the country's mining history. They draw the public's attention to geology, in such a way that the non-specialist can understand this often overlooked, but crucial, aspect of our natural heritage. It is also valuable for teachers of Earth Sciences and related fields, such as geography, and it contains a widely useable field guide and glossary. The themes of environmental awareness, tourism, education and science were linked for the first time to emphasise the needs for protection and for conservation of these treasures, for their aesthetic and historical value as well as for scientific and educational reasons.

Poster presentations to link tourism and geology were held at the Geocongress 2000, held in Stellenbosch during July 2000. They represented many different subjects. The authors presented different viewpoints of geotourism. In fact, eight authors presented nine different themes. These were:

- Geology and ecotourism in the Barberton Mountain Land, South Africa and Swaziland (Anhaeusser:3-4)
- The geology of some building stones in the Cape peninsula (Cole:12)
- Geoconservation in South Africa (Reimold:60-61)
- Geotourism in the Western Cape: of plinths and plaques (Rogers:63-64)
- Geoconservation in East Africa (Schlüter:66-67)
- The Kruger National Park: a challenge for geotourism (Schutte:67-68)
- A possible application of Conjoint Value Analysis (CVA) in the Kruger National Park with regard to geotourism (Schutte:68-69)
- Turbidites and tourists (Wickens:92)
- Geotourism in South Africa: opportunities and challenges (Wilhelm:92-93).

Four pre-congress excursions were planned for the Geocongress 2000:

1. Geology and Eco-tourism - Cape Fold Belt, break-up of Gondwana landscape evolution (29th June-2nd July 2000).
2. Terroir: The influence of geological factors on wine (3rd July 2000).
3. Geology and scenery of the Cape Peninsula (3rd July 2000).

4. Building Stones of Cape Town (5th July 2000).

At the Geocongress 2000, a workshop including a two-day (12 hours) hands-on course, "*Quality-Appraisal of Diamonds*", outlining the factors that contribute to the ultimate value of a diamonds, took place from the 2-3 July 2000. Participants were given the opportunity to handle cut diamonds of varying size, colour and proportions, and evaluate them in terms of internationally accepted norms. Brochures were prepared by geoscientists of the Belleville Branch of the Council for Geoscience (CGS) of the 11 geosites of the Western Cape and the brochures were available at the Congress. This was a new development to describe the geology of a geosite for the nonprofessional, and for geological excursions.

Grünert (2000:1-176) wrote the first tourist guide to geology, "*Namibia fascination of geology. A travel handbook*". It was intended for visitors to explain the geology and the geological evolution of Namibia in a very simple and understandable way. The rest of the chapters describe the geosites in various regions of the country. "*The roadside geology of Namibia*" was published by Schneider (2004:1-294). The following year, McCarthy and Rubidge (2005) published "*The story of Earth and life. A Southern African perspective on a 4.6-billion-year history*". This was the first popular text explaining southern African geological and paleontological history and was comprehensively illustrated with explanatory diagrams, and full colour photographs. It was a compilation of two one-day sessions of lectures at the University of the Witwatersrand in 2001 and 2002. A very informative book by Norman and Whitfield (2006:1-320) "*Geological journeys. A traveller's guide to South Africa's rocks and landforms*" explains the structure of the earth, plate tectonics, the geological timescale, classification of minerals and rocks and then gives a short geological history of the country. Eighteen routes to geosites along the main roads in South Africa are described and explained to the visitor in a very simple way with pictures and maps. Viljoen and Moore (2007:1-30) compiled "*A guide to the geology of Madikwe Game Reserve*", where twelve geosites are briefly described.

After Geocongress 2000, the Geotourism Interest Group (GIG), a subgroup of the Environmental, Conservation and Archives committee of GSSA, was officially formed on 31 October 2000. Latterly, it functions as "*The Conservation and Geotourism Committee of GSSA*". A geodatabase that should be completed by the Council for Geoscience (CGS) will form the basis for future research and information. So far, only the database that is managed by the Council for Geosciences materialised in 2007. A document, in which the concept of geotourism, opportunities and awareness, goals, and in which a vision and mission statement was outlined, was presented by Schutte (2000b).

Whitfield (2001:65-71) visited several historic sites in and around Johannesburg such as George Harrison Park where gold was discovered in 1868, Langlaagte Deep Village and the old headgear and inclined shaft on the original Robison mine. All the sites were neglected, and needed to be conserved and promoted. The question was asked how geotourism could save these mining heritage sites, and what the role of following institutions should be:

- Mining houses
- Chamber of mines of South Africa
- South African Heritage Agency
- Gauteng Tourism Authority
- Johannesburg Metropolitan Tourism Association.

Something must be done to conserve geological and mining heritage before it is too late, and at the same time, to educate the public. The main aims of GIG (now The Conservation and Geotourism Committee of GSSA) are to:

- Promote awareness of local and national heritage resources
- Compile and manage a database of natural heritage sites
- Assist in training of educators in Earth science at an introductory level
- Set and maintain standards for basic geological education for guides and teachers
- Establish a network of interested parties to accomplish these goals
- Generate funding to drive and accelerate the above processes
- Provide ongoing funding to maintain geosites/attractions until they are self-supporting.

Whitfield (2001:71) concludes, "*The time has come for all South Africans with an interest in the mining industry to add their support [for] the conservation and promotion of our dwindling mining heritage. One way to this is to support the GSSA's geotourism initiative. In addition, many unprotected geosites need to be identified and brought to the attention of the relevant local government and conservation authorities*".

3.5.3 THE GEOGRAPHICAL VIEWPOINT OF GEOTOURISM

Tourtelott (2002:2) define 'geotourism' as:

"***Tourism that sustains or enhances the geographical character of the place being visited - its environment, culture, aesthetics, heritage, and also the well being of its residents***".

At the joint NGT/TIA press conference held 13 March 2002 in New York Tourtellot explained the new concept of geotourism and the "*geographical character*" as a unifying umbrella was stressed. Geotourism is referred to as "*sustainable tourism on st*eroids" - it sustains, but it can also enhance. In the geotourism definition are several additional principles:

- Geotourism must provide an enjoyable, enriching experience for visitors
- Accordingly, it calls for visitors to receive high-quality information about the place, appealingly presented – 'interpretation' in the trade
- Geotourism requires the involvement of host communities, and that includes discovering and presenting that interpretive information. This can be exciting stuff.

One of geotourism's benefits to host communities, then, is the pride that comes with deeper knowledge of your own home's natural and cultural heritage

- Another community benefit, of course, is financial. It can come from providing geographically appropriate tourist goods and services. It can come from employment that includes avenues for career advancement, and
- To sustain those benefits indefinitely, host communities must practice good destination stewardship. That means adopting policies that protect the locale's environment and heritage, and it means managing tourism to achieve maximum benefit with minimum disruption. Geotourism accepts, therefore, that in some situations limits on tourist traffic may be necessary to avoid the loved-to-death syndrome.

In summary, then:

- Geotourism is environmentally responsible, committed to conserving resources and maintaining biodiversity
- Geotourism is culturally responsible, committed to respecting local sensibilities and building on local heritage
- In addition, while geotourism is incompatible with loss of natural or cultural diversity, it does not seek to stop the clock and preserve a destination in amber. What it does seek to preserve is geographical diversity, the distinctiveness of a locale. Sameness is a tourism-killer. A strip mall of nationally identical franchises afloat on a river of asphalt has no place in geotourism. Who will travel to see that?

In Appendix I: Adapted from the joint NGT/TIA press conference held 13 March 2002 in New York, Tourtelott gave the first description of geotourism in an article "*About tourism*" saying "S*ustainable tourism, like a doctor's code of ethics, means, "First, do no harm". It is basic to good destination stewardship*". Characteristics of geotourism are:

- Geotourism is environmentally responsible, committed to conserving resources and maintaining biodiversity
- Sustainable tourism does not abuse its product - the destination. It seeks to avoid the 'loved to death' syndrome. Businesses and other stakeholders anticipate development pressures and apply limits and management techniques that sustain natural habitats, heritage sites, scenic appeal, and local culture
- It conserves resources. Environmentally aware travellers favour businesses that minimize pollution, waste, energy consumption, water usage, landscaping chemicals, and unnecessary night time lighting
- It respects local culture and tradition. Foreign visitors learn about and observe local etiquette, including using at least a few courtesy words in the local language. Residents learn how to deal with foreign expectations that may differ from their own
- It aims for quality, not quantity. Communities measure tourism success not by sheer numbers of visitors, but by length of stay, distribution of money spent, and quality of experience.

Geotourism adds to these principles by building on geographical character – the 'sense of place' - to create a type of tourism that emphasizes the distinctiveness of its locale, beneficial to visitor and resident alike. Geotourism is defined as tourism that supports the geographical character of a place - its environment, culture, heritage, aesthetics and the well-being of its citizens and so:

- **Geotourism is synergistic**. All the elements of geographical character together create a tourist experience that is richer than the sum of its parts, appealing to visitors with diverse interests
- **It involves the community**. Local small businesses and civic groups work together to promote and provide a distinctive, authentic visitor experience
- **It informs both visitors and hosts**. Residents discover their own heritage and how the ordinary and familiar may be of interest to outsiders. As local people develop pride and skill in showing off their locale, tourists get more out of their visit
- **It benefits residents economically**. Travel businesses do their best to use the local workforce, services, and products and supplies. When the community understands the beneficial role of geotourism, it becomes an incentive for wise destination stewardship
- **It supports integrity of place**. Destination-savvy travellers seek out businesses that emphasize the character of the locale. Tourism revenues in turn raise local perceived value of those assets
- **It means great trips**. Satisfied, excited visitors bring new knowledge home and send friends off to experience the same thing - which provides continuing business for the destination.

(www.nationalgeographic.com/ travel/sustainable/sustainable.htm).

National Geographic Traveller (NGT) in the USA sponsored a landmark study, The Geotourism Study in 2002. Stueve, Cooke and Drew (2002:1-22) of The Research Department of the Travel Industry Association of America (TIA) in Washington, D.C. were responsible for its preparation. The first large-scale national study of the current and potential consumer market for geotourism was examined. It examined the travel habits and attitudes of the 55 million Americans now classified as 'sustainable' or 'geotourists'. The term 'geotourism' is closely related, but is concerned instead with preserving a destination's geographic character - the entire combination of natural and human attributes that make one place distinct from another. Geotourism encompasses both cultural *and* environmental concerns regarding travel, as well as the local impact tourism has upon communities and their individual economies and lifestyles.

'Geotourists' are high-income, frequent travellers who have a well above-average interest in environmentally oriented travel and prefer travel experiences that are culturally and socially oriented with travel patterns. The Geotourism Study segments American travellers into eight distinct market segments or profiles from the 154 million Americans who have taken at least one trip in the past three years. It was done according to their demographic-, travel- and

geotourism profiles. The report shows that three segments of travellers can indeed be called "*geotourists*" - those who are quite conscious of the environment and are inclined to seek culture and unique experiences when they travel. These segments not only represent millions of travellers, the segments are quite lucrative for the travel industry. The findings are summarised in Figure 3.5
(www.tia.org/Pubs/GeotourismPhaseFinal.PDF).

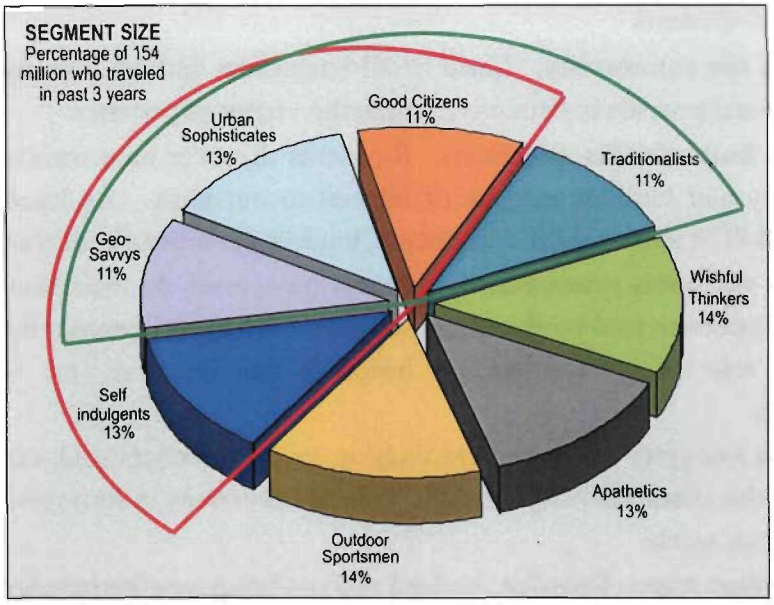


Figure 3.5: The eight traveller segments (Tourtelott, 2005:58)
(http://odin.dep.no/filarkiv/246728/Jonathan_Tourtellot_red_i_National_Geographic_traveller.pdf)

Cooke (2002:7) in "*Appendix 2: Geotourism Study Executive Summary*" (www.world-tourism.org/sustainable/ IYE/quebec/cd/statmnts/pdfs/tousae.pdf:7-8) states that three segments tend to have some 'empathy' and care for the environment and could probably the 'geotourist'. These segments share high income and educational levels, and a high incidence of travel, yet possess somewhat unique geotourism profiles. It includes inter-alia the following:

- 'Good citizens' are older, with about half of them 55 years of age. They show strong involvement in a variety of community activities, as well as heightened levels of cultural and environmental awareness and sensitivity, as manifested by behaviors in their local areas.
- 'Urban sophisticates' are more oriented to large city destinations and the cultural opportunities they provide
- 'Geo-savvys' are distinguished by their above average interest in environmentally-oriented travel

'Geo-Savvys' and 'Urban Sophisticates' show a distinct preference for culturally and

socially-related travel. They both share an intellectual curiosity as reflected in their well-above average tendencies to participate in a number of educationally and culturally-oriented activities in their local communities. They both also share more highly developed social consciences, engaging in pro-environment behaviors at home and more actively supporting environmental and cultural organizations through donations of time and money than the other segments. Lastly they tend to be dominated by Baby Boomers.

The three next segments are viewed as good potential geotourism markets. These are the:

- 'Traditionals' are older than 'Good Citizens'; and not as inclined to travel as other segments
- 'Wishful Thinkers', are at the other end of the age spectrum dominated by members of Generation X and Y
- 'Apathetics' are more likely to be 'Baby Boomers'.

Like 'Good Citizens', the 'Traditionals' segment is an older demographic group, not as inclined to travel as many of the other segments. 'Wishful Thinkers' are at the other end of the age spectrum, dominated by members of Generation X and Y, while 'Apathetics' are more likely to be Baby Boomers.

Two of these groups, the 'Traditionals' and 'Apathetics', are conservative in their travel choices, looking for predictability, and the high levels of cleanliness, safety and security. 'Wishful Thinkers' wish they could travel more than they do now and want to be very busy and active when they do. They are looking to be entertained and to have fun when they travel. None of these three groups seems particularly interested in culturally-oriented travel or cultural activities in their local areas. They also tend to be less environmentally-oriented, both when they travel and at home, although 'Wishful Thinkers' do show some interest in outdoor-related travel.

Generation X is a term used in the USA to refer to a generational cohort of children born after the baby boom ended and usually prior to the 1980s (http://en.wikipedia.org/wiki/Generation_X). Generation Y is also known as The Millennial Generation, is a term used to describe the demographic cohort following Generation X. Its members are often referred to as "*Millennials*" or "*Echo Boomers*". There are no precise dates for when Generation Y starts and ends. Most commentators use dates from the early 1980s to early 1990s. Members of Generation Y are primarily the offspring of the Baby Boom Generation (http://en.wikipedia.org/wiki/Generation_Y).

The last two segments are:

- 'Outdoor sportsmen'
- 'Self-indulgents' are looking specifically for those upscale travel experiences.

These two groups tend to be at opposite ends of the spectrum in terms of income and travel preferences, but both are largely centered in the Baby Boom generation, age 34 to 54, with a

large percentage of younger adults under age 35 included, as well. 'Outdoor Sportsmen' of whom 61 percent are men like to travel especially to the countryside, remote locales and into the wilderness. They enjoy outdoor activities, especially hunting and fishing. They say they value a clean unpolluted environment, but are well-below average in their tendencies to support organizations and efforts to preserve and protect the environment. 'Outdoor Sportsmen' are the least likely of all segments to seek upscale travel experiences and to engage in culturally-oriented activities either at home or while travelling.

'Self-Indulgents', on the other hand, are looking specifically for those upscale travel experiences. They see travel as a way to get away from the demands of home and work and want to have fun and be entertained, similar to the 'Wishful Thinkers'. They are generally below average in their interest in culturally or environmentally-oriented travel and community based activities. But what really distinguishes 'Self-Indulgents' from other segments is their general lack of cultural and environmental awareness and sensitivity and, in some cases even, their negative cultural and environment attitudes. They are the least likely of all the segments to actively engage in activities such as supporting certain companies because of their pro environment or social policies, or to donate money to or volunteer time for a variety of organisations which support environmental and cultural programs, for example.

The findings expand the concept of sustainability as it relates to cultural heritage tourism. While sustainable tourism generally refers to the impact of mass-market tourism on the ecological environment, geotourism goes a step further to encompass the preservation of a destination's culture, heritage, aesthetics and environment, as well as the vitality of the community's lifestyles and economy. According to Cooke (2002, as cited in www.nasaa-arts.org/artworks/geotourism.shtml), the study shows that a destination's unique characteristics are what primarily attract those consumers who make the most trips, spend the most money and produce the greatest volume of visitors overall. From the above, geotourism is to large extent geographically orientated, not geologically. Tourtelott (2005: 1-111) amply illustrates the concept in a power point presentation (http://odin.dep.no/filarkiv/246728/Jonathan_Tourtellot_red_i_National_Geographic_traveller.pdf).

Finally, the principles of geotourism were endorsed as a strategy for gateway regions and adjacent wilderness areas and wild lands. Participants were urged to collaborate to adapt geotourism principles to the specific needs of gateway regions and those participants were encouraged to join in an alliance to help implement the geotourism approach worldwide.

3.5.4 THE RELATIONSHIPS OF GEOTOURISM TO OTHER TYPES OF TOURISM

Mieczkowski (1995:464-466) is of the opinion that ecotourism overlaps with several types of tourism, such as educational, scientific, adventure and agritourism. By examining the

relation between alternative tourism and ecotourism in Mieczkowski's model, the author proposes that geotourism, together with cultural, educational, scientific, adventure and agritourism, is also part of alternative tourism, as is shown in Figure 3.6.

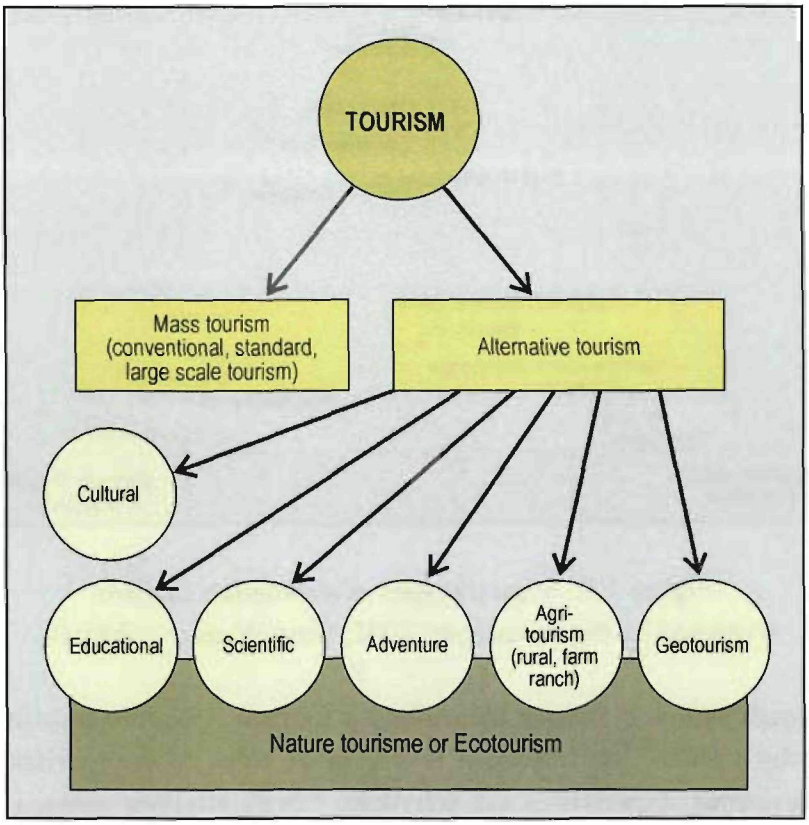


Figure 3.6: Alternative tourism (Adapted by the researcher: 2008, to Mieczkowski, 1995:459)

Weaver (2006:39-40) depicts a typology of candidate subtypes based on the extent to which they are defined by their relative orientation toward attractions, accommodations or motivations as a triangle by their relative orientation towards one of the three criteria, while several combine attraction and motivation. The subtypes may vary to the extent to which they are marketed as alternative tourism by their relevant organisations, because some of them occur both as alternative and mass tourism (for example, ecotourism and historical re-enactments). Geotourism would be near the attraction corner. At present, it is more orientated towards the attraction itself, as shown in Figure 3.7.

A range of special interest tourism categories could include regional, cultural, heritage, rural, educational, cycle, aboriginal cultures and indigenous, travelling for health, environmental, wine and food, cruise, festivals and events and seniors tourism. These categories overlap in many cases (http://www.bized.co.uk/educators/16-19/tourism/special/presentation/special1.ppt).

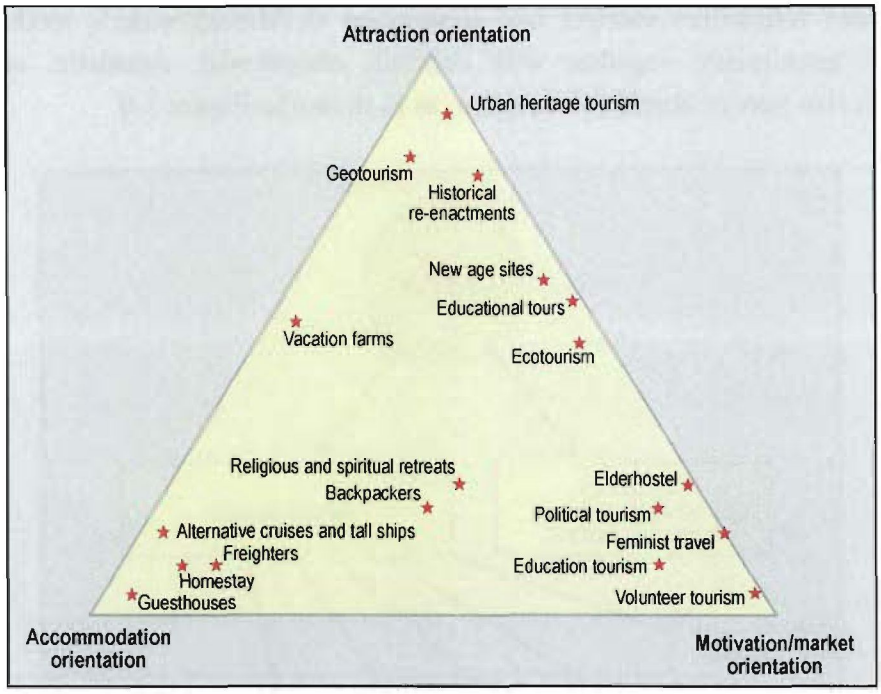


Figure 3.7: Various types of alternative tourism
(Adapted by the researcher: 2008, from Weaver, 2006:40)

Tourism New South Wales describes nature-based tourism. 'Nature tourism' is not a term commonly used by visitors, but instead it is a term of value to the tourism industry in the context of visitor desires, experiences and activities. "*In its broadest sense, nature in tourism involves experiencing natural places, typically through outdoor activities that are sustainable in terms of their impact on the environment*". It ranges from active to passive and includes everything from bush walking and adventure tourism experiences to sightseeing, scenic driving, beach experiences and wildlife viewing. A visitor may combine several of these in the one trip. Nature-based experiences are intimately linked to all other aspects of the visitor's total experience of a destination, such as food, culture, relaxation, health, escape, family needs, accommodation and transport. They complement each other and together form the basis of a visitor's overall satisfaction with their holiday and include the benefits of nature (for example, relaxation). Nature in tourism embraces what is commonly termed 'nature tourism' and its various subsets and the wider visitor benefits provided by nature. Nature is crucial to the experience or it may enhance the experience. The elements of nature tourism are shown in Figure 3.8.

Simpson (2003) believes that nature tourism in the UK occurs in natural settings with the added emphasis of fostering understanding and conservation of the natural environment. Activities are wildlife, birds, cycling, walking, horse riding, heritage, organized trails, forest parks and nature reserves, camping, footpaths/bridleways, fishing, quad bikes, painting, and passive activities like rest, relaxation and picnics. Soft adventure activities commonly require a moderate level of physical involvement by participants and are less physically challenging

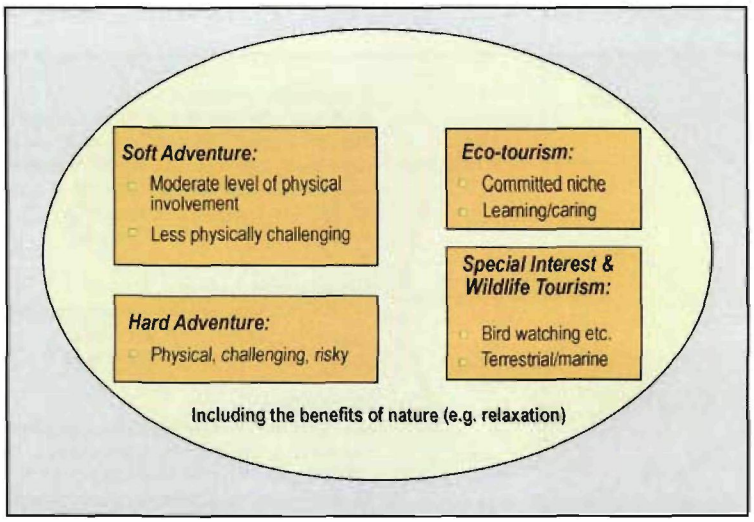


Figure 3.8: Elements of nature tourism (Tourism New South Wales) (www.corporate.tourism.nsw.gov.au/Sites/.../2_defining_nature_tourism.pdf:4).

than hard activities. These soft activities can include hiking/bushwalking, mountain biking/bicycling, camping, horseback riding, orienteering, walking tours, wildlife spotting, whale watching, river and lake canoeing and fishing. Hard adventure activities conversely commonly involve a higher level of physical or rugged involvement or a potentially greater personal challenge for participants, while the risk factor can also increase. Hard adventure activities with a nature basis or need include caving, scuba-diving, trekking, white water rafting, kayaking, rock and mountain climbing, cross-country skiing, safaris, surfing, windsurfing, ballooning and ocean sailing (www.openspace.eca.ac.uk/costE33/ppt/MurraySimpsonPresentation.ppt).

In the South Australian Tourism Plan 2003-2008, it is stated that ecotourism is a part of nature-based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable. Figure 3.9 shows the difference between sustainable tourism, nature-based tourism and ecotourism.

At the International Ecotourism Conference held at Cairns, Australia, during October 2002, some of the definitions of ecotourism were given as follows:

- Ecotourism encompasses a spectrum of nature-based activities that foster visitor appreciation and understanding of natural and cultural heritage. These activities are managed to be ecologically, economically and socially sustainable. Research is showing that ecotourists are now demanding that their travels encompass a 'learning experience' and 'deep appreciation' of how local communities live within their ecological systems.
- Ecotourism is responsible travel that promotes the conservation of nature and sustains the well-being of local people. It must be exciting, educational and ethical.
- Ecotourism is a specialty segment of nature tourism.

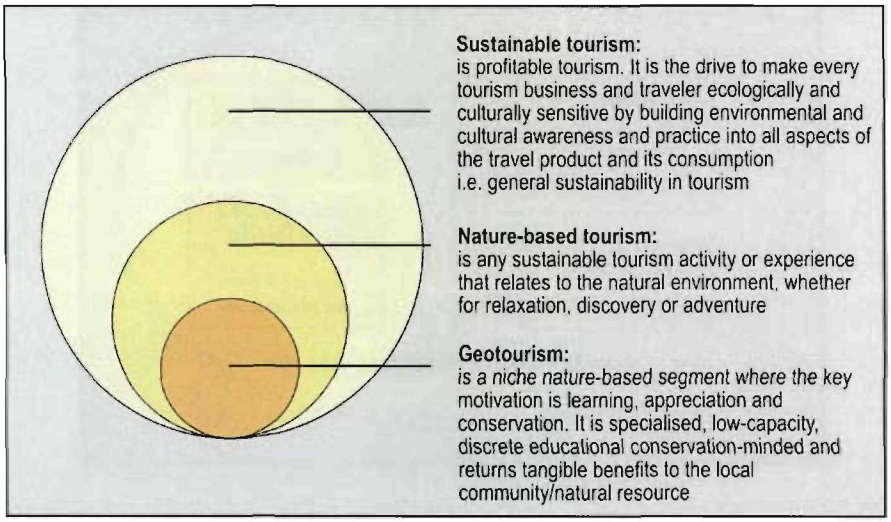


Figure 3.9: The relationship between sustainable tourism, nature-based tourism and geotourism (adapted by the researcher for geotourism 2009) (http://server-au.imrworldwide.com/cgi-bin/b?cg=documentdownloads&ci=sa-corporate&tu=http://www.tourism.sa.gov.au/tourism/plan/TourismPlan2003_2008.pdf:17).

Despite the many varying definitions developed since the word ecotourism was phrased in the mid-1980, some notable consistencies remain with most definitions describing ecotourism as:

- Nature based
- Ecologically sustainable
- Contributing to conservation and local communities
- Involving education and interpretation of the natural environment. (www.joondalup.wa.gov.au/BUcouncilsupport/agenmin/Agenda/2002/Attach5brf101202.pdf)

Strasdas (2001:6) believes that ecotourism is a form of responsible awareness journey in natural areas where the nature experience is the focus. Ecotourism minimises negative ecological and socio-cultural effects, adds to the financing of protected areas or nature conservation measures and creates income possibilities for the local population. Indirect ecotourism should increase the nature acceptance of the relevant community actors. Weaver (2006:91-194, 205-206) states that ecotourism involves an emphasis on nature-based attractions, educational interactions with these attractions and management practices that make every reasonable effort to achieve environmentally and socio-culturally sustainable outcomes. An intensive study of ecotourism by Strasdas in 2001 (http://www.tourism-watch.de/dt/24dt/24.praxis/index.html) was made as demonstrated by four case studies in the biosphere reserve of Calamul, Mexico, the sea protection area at Cancún, Belize, the Rio Bravo Conservation and Management Area (RBCMA) and the Toledo Ecotourism Association. Ecotourism was studied, not as a sustainable tourism strategy, but as a niche in

the tourism market. Nevertheless, even as a niche, it could have a considerable importance that will contribute to nature conservation and rural areas, especially in developing countries. The problem of ecological and socio-cultural accommodation in ecotourism was proven less important. It is more difficult to implement socio-economic and nature political aims because of the:

- Financing of protected areas
- Creation of local income
- Acceptance of nature conservation.

This is also true for well and less developed regions. In spite of criticism, the demanding concept of ecotourism can be achieved. The problem could be implemented as follows:

- All those involved must work together
- All stakeholders from the environmental sector must come from the developmental, political spectrum on the one side, and from the tourism sector on the other.

(http://www.tourism-watch.de/dt/24dt/24.praxis/index.html).

At the "*Ökotourismus in Berggebieten – eine Herausforderung für nachhaltige Entwicklung*" Conference held at St. Johann/Pongau and Werfenweng, Salzburg, Austria, during 12-15 September 2001, ecotourism in the context of sustainable development was discussed. It was seen as a concept to conserve natural landscapes. In overseas destinations in Europe, it was regarded as a niche product by tourism enterprises. Consensus was reached that ecotourism should be developed in an ecological, social and economic manner. During planning and implementation, the efficient and balanced participation of those concerned, especially the local people, must be considered. When these aims are achieved, ecotourism could then be realised as an instrument for economic development.
(http://www.bmwa.gv.at/NR/rdonlyres/72CEB215-87FE-42FA-8F2F-21607163F67F/1795/StJohannSchlussdok.pdf).

Buckley (2003:76) believes that the defining characteristics of ecotourism fall into two categories, those of environmental inputs and those of environmental outputs. The inputs are the natural and associated cultural features in a particular geographic location that serve as attractions for tourists. The outputs are the net costs or benefits for the natural and social environment. Ecotourism can hence be viewed as geotourism with a positive triple bottom line. There are several advantages to this view as:

- It clarifies the meaning of ecotourism without redefining it
- It bypasses the service components that are common to tourism in general, not distinctive to ecotourism
- It treats environmental management and interpretation as means, not ends in themselves
- It requires an accurate accounting of environmental and social, as well as financial, costs together with the benefits
- It differentiates ecotourism from tourism products with a mere veneer of green

- The tourism products and organisations that are generally viewed as the world's best practices in ecotourism comply with this definition.

Heritage tourism is defined in the guide "*Successful Tourism at Heritage places: A guide for tourism operators*, heritage managers and communities" as: "*Activities and services which provide international and domestic visitors with the opportunity to experience, understand and enjoy the special values of Australia's heritage*" (www.ahc.gov.au/explore/tourism/guide/pdf/guide.pdf). Heritage tourism values in Australia are depicted in Figure 3.10.

Dallen *et al.* (2003:62-69, 84-85) is of the opinion that 1) heritage tourism has witnessed a phenomenal growth as of late; and 2) heritage tourism demand can be viewed from different perspectives, including:

- Current or use demand
- Option demand (visiting the future)
- Existence demand (intrinsic value that is placed on heritage that is not actually consumed)
- Bequest demand (heritage being passed to future generations
- Latent demand and demand can be viewed according to the source.

Figure 3.10: Heritage tourism values in Australia (www.ahc.gov.au/explore/tourism/guide/pdf/guide.pdf: 4).

Visitor characteristics

Heritage tourists can be distinguished by their demographic (level of education, gender, age, income level and employment types), geographic origins (closely related to the scale of attraction visited) and psychographic (tendency to be more allocentric in type) characteristics.

Motivations that drive tourists to visit heritage places

As for demand, the focus should be on understanding unmet demand and how to turn this into actual use and so overcome obstacles preventing visitors visiting the heritage site. Above all tourists are regarded as interested in gaining an overall experience in places they visit.

Wildlife tourism can be both eco- and animal-friendly tourism in both captive and wild environments. It has experienced a dramatic and rapid growth in recent years worldwide. Wildlife tourism, in its simplest sense, is watching wild animals in their natural habitat. Wildlife tourism in a wider sense is also a multi-million dollar industry offering customized tour packages and safaris (http://en.wikipedia.org/wiki/Wildlife_tourism).

3.6 GEOCONSERVATION

Without geoconservation, there will not be any geotourism. According to Hose (2006:222-223), geoconservation was defined by himself in 2003 as "*The dynamic preservation and maintenance of geosites, together with geological and geomorphological collections, materials and documentation*". Hose is of the opinion that much of the value of geosites lies in the availability of, and accesses to, *in situ* rock specimens that benefit from limited disturbance, restricted collecting and removal of soil/debris. When geoconservation measures are linked to tourism promotion, they are key geotourism elements. Geoconservation (http://www.geoconservation.com/index.htm) involves recognising, protecting and managing sites and landscapes identified as important for their fossils, minerals, rocks, processes or landforms. "*Geodiversity conservation (synonymous with Earth Heritage Conservation) is a much wider term designed to encompass the conservation of geological and geomorphological processes, i.e. rocks, fossils and minerals and landforms, but also museum specimens, building stone, buildings, archives, maps and data*".

At a meeting in Strasbourg, France, on 5 May 2004 the Committee of Ministers of the Council of Europe adopted the "*Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest*". The philosophy and practice of geological and geomorphological conservation are explained in Appendix 1 where it is stated that geology and geomorphology describe the history and form of the planet. They help to understand Earth's history in terms of how the face of the planet has changed over time, by means of the evidence in rocks, sediments, fossils and minerals that reveal past climates, environments, mountain construction, and the movement of continents. The history of life itself is also revealed; how it began and evolved, how new species appeared and how species became extinct. Geomorphology interprets the present landforms such as deserts, glaciers, coastlines and others, and the conditions under which they were formed. It also provides a record of the recent past and current processes operating on the planet. Rocks, minerals and fossils show the history of the planet together with the history of life itself. They are evidence of the passage of geological time that reveals the changes shaping the Earth's surface over millions of years. These archives make it possible to understand the way the planet looks today, and for the diversity of its fauna and flora. Despite their apparent

permanence, geosites, minerals and fossils are vulnerable and are a non-renewable heritage that belongs to humanity.

There is a constant interaction of human society with geology and geomorphology in many ways, through the exploitation of mineral resources, reshaping the landscape by industrial or agricultural activity, and through the development of infrastructure links. By quarrying, mining and the cutting of new roads, these activities reveal geological or geomorphological information of scientific, educational or cultural value. In other ways, these very activities destroy the information just as they reveal it. The armouring and obscuring of rock sections and the infilling of old quarries with waste are examples of destructive activities.

Protecting the geoheritage is the objective of geoconservation that is being actively promoted in Europe through a number of programs and through the activities of many individuals. The programs that promote geoconservation seek to identify geosites/areas, educate the public about their value and to develop management plans or strategies that will not only protect but also enhance this value. There is a need to increase awareness of the importance of geoconservation to allow it to rank alongside, and fully support, biological conservation. Opportunities already exist to work towards these aims at a European level, via the Council of Europe and the involvement of member states, and through the various inter-governmental and non-governmental international organisations operating within Europe, such as UNESCO, the International Union of Geological Sciences (IUGS), and the World Conservation Union (IUCN) (www.jncc.gov.uk/pdf/councilofeurope1.pdf).

According to Verpaelst (2004), two reasons for protecting geosites as part of geoheritage are:

1. To ensure the protection and preservation of geological diversity, meaning all the different geological elements found ..., which may be threatened by natural disasters or by human intervention
2. To increase public awareness of the geological cycle, and to better understand all of its components.

In South Africa, very little has been done in this respect, and yet the principles of geoconservation can be applied very successfully here. At the Vredefort Dome, at the Cradle of Humankind (COH) and at the Greater St. Lucia Wetlands (iSimangaliso), the first attempts were made to protect geoheritage.

So far, the emphasis on valuing our natural environment has been dominated by biological values. Pemberton (2001:1-7) is of the opinion that geoconservation or the conservation of geodiversity needs to be promoted and taken more seriously because these values will assist in communicating the fascinating history of the earth to the large majority of people who find the explanation of geological history truly daunting. Biologists and other natural scientists widely accepted the need for nature conservation. Nature conservation agencies and governments in Australia and overseas tend to emphasise the need for the conservation of biodiversity, while they virtually ignore the geological foundation on which it is built and

from which it has evolved. This is because of a lack of pressure on the part of earth scientists who are not trained in conservation theory and have had very little input into the development of conservation strategies and policies, particularly with regard to geoconservation. Most earth scientists are trained for, and employed in, the extractive and mining industries, and to be involved in conservation could be seen to be contrary to the goals of the profession by some.

Indeed it may be thought that to conserve geodiversity may be more important than biodiversity because mostly rare or threatened species can be propagated or bred in captivity. Many geological features have formed under conditions climatic or geological that are now inactive. They represent essentially relic or 'fossil' features that, once disturbed, will never recover or will be removed forever. In the case of biodiversity, there would be enormous concern. If mankind cannot afford to lose biodiversity then a very strong case to conserve geodiversity could be made. Ecosystems depend entirely on their non-living parts like the bedrock, landforms, soils or related processes. Geological features thus also have their own values irrespective of their relationships with biodiversity. Hence, there would simply be no biodiversity without geodiversity. The story of the Earth's natural diversity, the links between geodiversity and biodiversity, and how they have evolved, needs to be explained to visitors and tourists. This is a strong need to improve communication regarding the Earth's processes. National Parks and other natural areas are the best places to do this.

Pemberton (2001:1) concludes, "*the links between geodiversity and biodiversity would assist people to value the non-living environment. This would facilitate a greater appreciation of natural diversity and provide a pathway for the public better to understand the complexities and wonders of our geological history. Concentrating on communicating our attitudes, philosophies and practices to the wider community may not be the only approach. We should try to nurture a respect and appreciation of the earth's evolution and its building blocks*" (http://www.dpiwe.tas.gov.au/inter.nsf/Attachments/SJON-57W5Z5/$FILE/geocon_abstract.pdf, www.tasmaniaoutdoors.com/infosheets/Geoconservation%20Principles.pdf).

Doyle (2003:19) notes that most people associate the concept of fragility and the endangering of a resource as one that is almost exclusive biological. Because of the increased awareness of green issues, there is a corresponding awareness of the need to protect living species, and habitats (the protection of the African elephant and Amazonian rainforest are good examples). Unfortunately geological features are often built over and, all too often, destroyed. Doyle (2003:19) continues, "*Geoconservation, sometimes called Earth heritage conservation, is a relatively new concept. It means conserving the Earth's geological and geomorphological features for the same reasons that habitats are conserved, namely that they have intrinsic value in their own right; that they are of value in scientific research, education and training; and that they are of aesthetic value, often within a cultural framework. Today it is common to refer to the concept of geodiversity to match that of*

biodiversity; geodiversity recognizes the variety and depth of the geological resource and express its richness to the layperson".

Wimbledon (1999:1-7) gives a short introduction of efforts by the International Union of Geosciences (IUGS) concerning the conservation of geosites. A debate has been taking place for the last ten years over the possibilities of inclusion of geological sites in global conservation schemes and in the World Heritage List. The strongest proponents of this school of thought came from Europe. At the ProGEO, IUGS- and UNESCO-organised workshops, the construction of interrelated global and national inventories were discussed. A number of workshops were held all over the world. It was stressed, "*Sadly, many geoscientists fail to see the fundamental supportive role of geosite conservation. Its role is to keep available the vital site resource that our community needs for future research, as well as for education and training. In essence, it's a simple principle: no sites, no science. Geoconservation is essential to maintaining the best of our geoscience heritage*". Doyle further admits that geologists are not good at 'selling' geo(morpho)logy, for it is mistakenly thought that biological sites are always more vulnerable to change or threat than are geoscience sites. Yet, many geological and geomorphological monuments are of finite extent because they cannot accommodate development nor retain their intrinsic value, and they are non-renewable. Thus, neglect may threaten the best geoscience sites.
GEOSITES was started by IUGS in 1996 and works through regional working groups. It is a project to involve the geological community in geoconservation with the aim of providing a factual basis (inventory and data set) to support any national or international initiative to protect the geological resource, which is the basic resource for research and education. The intention is to redress the imbalances in conservation. The aims are not exclusive but are designed to mesh with and support national and geocommunity initiatives. Most importantly, it offers a uniform methodology for site comparisons and justification.

James, James and Clark (2006) also stress that, as a global community, an understanding of the use of land for mining, quarrying and the development of the built environment is fundamentally related to the underlying rocks, soils and landforms. This component of the natural world and the biological, archaeological, historical and cultural equivalents must be protected and conserved for the enjoyment and education of future generations. They believe that geoheritage must be conserved not only for its utilitarian value, but also for its beauty, aesthetic and intrinsic importance. By doing this, the global geoconservation movement would be rapidly expanded in order to achieve its rightful status as a key component of the overall worldwide conservation strategy.

Gray (2004:175) believes that conservation is a human response to perceived threats to features regarded as having value and "it is the embodiment of an environmentally sophisticated society that it acts to avoid losses and protect what is vulnerable to damage". International organisations, governments or local bodies have a large variety of ways to attempt to protect areas of geological or geomorphological importance. How conservation has been, and can be, implemented is a very important issue. There are enough ideas to

implement, but there must be the political motivation and adequate resources to apply the implementation.

Several conclusions about valuing and conserving geodiversity are noted by Gray (2004:367):

- The Earth has not only a huge biodiversity, but also an enormous geodiversity, and this diversity is of value both intrinsically and in utilitarian ways that are barely appreciated by human beings
- Not all of the geodiversity of the planet needs to be conserved, only those elements that are seen as being significant for one or more of their values. This proportion of total geodiversity is known as the geoheritage
- There are significant threats to this geoheritage from a variety of human activities either directly or through influencing the rates of operation of earth surface processes. Different aspects of geodiversity vary in their sensitivity and vulnerability to different types of threats
- Protection of geoheritage is a complex task involving decisions on sites to be included, boundary identification, site documentation monitoring and enforcement. Most countries now agree that the aim of geoconservation should be maintaining a representative sample of a country's or area's geodiversity. While there are significant efforts at protection and management at the international level and in several nations, sub-nations and regions, some countries have barely begun the process of geoconservation
- But even this is unlikely to be sufficient to protect geodiversity, and so a number of approaches are being used to assess and conserve the wider geodiversity resource and to make decision makers and the public aware of this geoheritage, for as Hillel (1991: 9) has put it "*we cannot protect what we do not understand*"
- Geoconservation needs to be established as an independent subject in its own right and to be integrated with wildlife conservation in a more holistic approach to nature conservation, and even beyond that, to develop comprehensive and sustainable land use management and natural resource strategies.

According to Gray (Crofts, 2001, as cited by Gray, 2004:367), the following six principles for sustaining the Earth's resources are:

- Accept that natural change is inevitable.
- Work with natural functions and processes.
- Manage natural systems within the limits of their capacity.
- Manage natural systems in a spatially integrated manner.
- Use non-renewable Earth resources wisely and sparingly at a rate that does not restrict future options; and
- Use renewable resources within their regeneration capacity.

These principles represent the basis for a future strategy for sustaining geodiversity and so ought to be embedded in each country's nature conservation strategy.

Dowling and Newsome (2006:254) conclude that it is imperative to protect the georesource base: "*However, where resources are deemed appropriate for geotourism development, then the resource needs to be fully understood – especially concerning its conservation. Thus it is paramount that geoconservation is fully resourced so that the interface between conservation and tourism can be understood, for without this understanding the promise of geotourism will not be reached*".

3.6.1 ISSUES IN INTERNATIONAL GEOCONSERVATION

Gray (2004:257-262) believes that the major issues in international geoconservation are:

- **Diversity of systems**: Biodiversity dominates conservation worldwide. Systems of protected areas and nature conservation vary around the world. Some geoconservation is being done in the UK (Dorset coast), Australia (Uluru), New Zealand (Tongariro), USA (Yellowstone, Grand Canyon) and Europe (Eifel Geopark, Rammelsberg WHS. Much more need to be done for geodiversity conservation – it should be the standard objective of nature conservation.
- **Site selection methods**: Countries with geoconservation site networks have different means of site selection. Literature reviews, panels of experts for consensus judgements have been used. Ideally, systematic surveys or national inventories of the geodiversity resource should be established as a basis for selecting sites, but there are few examples of this approach
- **Site selection criteria**: Early criteria used were research value, rarity, vulnerability to threat and representativeness. Significance, outstanding features and earth science interest's level of detail are other critical points
- **Duplication or replication**? To avoid duplication, some countries select only one example of the different types of feature. Replication provides some security against the complete loss of a particular aspect of geodiversity. With fewer examples of a type of feature that exists, it is than more important than ever to protect a higher proportion of the samples of the type and so the case for replication is stronger in the case of features that are highly sensitive, that support biodiversity or that are poorly understood. It also allows having representatives of particular types of feature in different parts of the country, thereby supporting local geodiversity
- **Values**: Sites can offer value in more than one way
- **Scope**: Many systems could be both static or dynamic.
- **Significance**: Sites may be graded for significance according to international, national or local importance.
- **Site management and enforcement**: Management of geosites varies greatly. Sometimes reliance is placed on significance of the protected area and related legislation. Academic scientists are less good at practical site management. Fencing

around a petrified tree in Yellowstone National Park is used to protect it from souvenir hunters. At the Craters of the Moon National Monument, Idaho, USA, signage is used to discourage collecting and to discourage off-track access. In other places paths, boardwalks and related signage are used to restrict visitor access to sensitive areas. The best solution would be in education in the belief that voluntary restraint will restrict damage to sites.

- **International agreements**: Stürm (1994) argued that an International Agreement would be useful in promoting and supporting the implementation of the geotope concept within national planning systems. This type of agreement would cover the following issues:
  - The definition of the spatial unit (geotope)
  - The creation of an international inventory of important geotopes (including criteria and procedures for selection)
  - The obligation of countries to integrate geoconservation into their planning policies and legislation including the designation of geotope areas; to take account of geoconservation at all stages of their plan making and approval processes at all administrative levels, and to establish an inventory of geotopes of national and regional importance; and
  - The establishment in each country of a statutory body that would supervise, sustain and provide the implementation of the geotope concept.

In conclusion, Gray (2004:262) says that, "*Despite the diversity of geoconservation systems and networks currently in use, many countries and organizations now agree that the aim of geoconservation should be to maintain the rage of earth science features within their borders...[and] that they aim to conserve a representative selection of the geodiversity of their country*".

The "*Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest*" in Strasbourg, France, on 5 May 2004, was the first time that an activity of guidelines on the conservation of the geoheritage was launched on a world-wide scale at this level.

The explicitly philosophy of the recommendation was to join the forces of all role players and stakeholders involved. Issues related to in this agenda of geoconservation included:

- The philosophy and practice of geological and geomorphological conservation Existing conservation programs
- The IUGS geosites project
- European geoparks
- World Heritage Convention
- The management of areas of special geological interest and of legislation for protecting areas of special geological interest and moveable geological heritage

- Developing information and education programs to promote action in the field of geological heritage conservation
- Strengthening co-operation with international organisations, scientific institutions and NGOs in the field

(www.jncc.gov.uk/pdf/councilofeurope1.pdf).

The Committee of Ministers of the Council of Europe made the following statement (Recommendation Rec (2004)3):

- Recalling the United Nations' Millennium Declaration, in particular the assertion of the fundamental value of "respect for nature" in the management of all living species and natural resources
- Recalling that geological heritage constitutes a natural heritage of scientific, cultural, aesthetic, landscape, economic and intrinsic values, which needs to be preserved and handed down to future generations
- Recognising the important role of geological and geomorphological conservation in maintaining the character of many European landscapes
- Recognising that the conservation and management of geological heritage need to be integrated by governments in their national goals and programs.
- Noting that some areas of geological importance will deteriorate if they are not taken into account in planning and development policies
- Aware of the need to promote the conservation and appropriate management of the geological heritage of Europe, in particular areas of special geological interest
- Considering the philosophy and practice of geological and geomorphological conservation (see Appendix 1 to this recommendation)
- Recognising the need to strengthen the regional co-operation in Europe in the field of geological heritage conservation, recommends that governments of member states:
  - Identify in their territories areas of special geological interest, the preservation and management of which may contribute to the protection and enrichment of national and European geological heritage; in this context, take into account existing organisations and current geological conservation programs (see Appendix 2 to this recommendation)
  - Develop national strategies and guidelines for the protection and management of areas of special geological interest embodying the principles of inventory development, site classification, database development, site condition monitoring and tourist and visitor management, to ensure sustainable use of areas of geological interest through appropriate management
  - Reinforce existing legal instruments or develop new ones, to protect areas of special geological interest and moveable items of geological heritage, making full use of existing international conventions
  - Support information and education programs to promote action in the field of geological heritage conservation

- Strengthen co-operation with international organisations, scientific institutions and NGOs in the field of geoheritage conservation
- Allocate adequate financial resources to support the initiatives proposed above
- Report to the Council of Europe on the implementation of this recommendation five years after its adoption, so that an assessment of its impact may be carried out.

Appendix 2 describes existing conservation programs and criteria in the selection of areas of special geological importance. Common elements taken into account by national programs when listing sites are:

- The extent to which an area or site represents an important geological phenomenon.
- The scientific value of the area
- The pedagogical value of the area
- Rarity of geological/geomorphological phenomena within the area
- Degree of disturbance and potential threats
- Size of the area.

In the *"Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest"*, Appendix 5 spelled out the recommended information and education programs to promote action in the field of geoheritage conservation. It was suggested that Governments of member states should promote action in these fields by identifying and utilising opportunities to develop and support information and education programs, both within their own jurisdictions and regionally, acting via the Council of Europe and other relevant international or European organisations.

According to the Aarhus Convention, access to information and public participation in environmental decision-making is now understood to be an important part of sustainable development. The importance of educational activities through programs aimed at well-defined target groups is recognised by the Council of Europe. The objectives of these programs are to raise awareness and develop partnerships for the conservation and enhancement of natural and cultural heritage. The Working Group on Geological Heritage emphasised in this recommendation that the geoheritage of Europe is an important and integral part of the region's natural heritage. The concepts of geological and geomorphological conservation are less publicised than are those relating to the conservation of biodiversity or the protection of landscapes.

Therefore, the purpose of any geoconservation information and education program should be parallel to that described above, and should complement informational or educational initiatives designed to raise awareness of landscape and biodiversity issues. Geoconservation in all its forms and features and all its scientific, social and economic aspects represents an important part of the European common heritage. It is directly relevant to biodiversity

conservation and to landscape protection, and the proposed program should emphasise integration with these other conservation and protection programs (www.jncc.gov.uk/pdf/councilofeurope1.pdf).

3.6.2 GEOCONSERVATION IN SOUTH AFRICA

Reimold (1999:469-483) described geoconservation in Southern Africa. He noted a wealth of outstanding geological sites although pro-active geoconservation on the African continent had not featured very prominently to that date. Reimold further intimated that, in the interest of science, education and tourism, both unique and typical geosites needed to be identified, catalogued and prioritised with their protection being the aim if such identification . Further he notes that geoconservation aimed to identify and protect Earth science related heritage for protection and conservation prior to its destruction or degradation. He gave the following as reasons why geoconservation is important:

- It is part of general environmental protection, which would extend to all terrains and to all aspects of the surface of this planet
- Education relies on well-preserved natural instruction sites. (How can one teach geology when the best examples of geomorphological features and typical geological type sections (stratotypes) are no longer accessible for demonstration?)
- Scientific use demands protection of this heritage, for future examination, for comparison with new discoveries and for renewed scrutiny of previous hypothesis and dogma
- Many African countries already discovered the bonus that comes with the protection of natural sites, as ecotourism and tourism provide much needed revenue.

Figure 3.11: Old washing machine, Big Hole, Kimberley.
In the background some of the diamond sorting tables can be seen

At the time Reimold wrote, little had been done conserve geoheritage in South Africa except in the Vredefort Dome, at the Cradle of Humankind (COH), in the Greater St. Lucia

Wetlands, and the mining towns of Johannesburg, Pilgrim's, Rest, Cullinan and Kimberley. It was suggested that the most important geosites in the country should be protected and that a national geosites database should be developed. The database was started only in 2005 and is administered by the Council for Geoscience (CGS) in Pretoria.

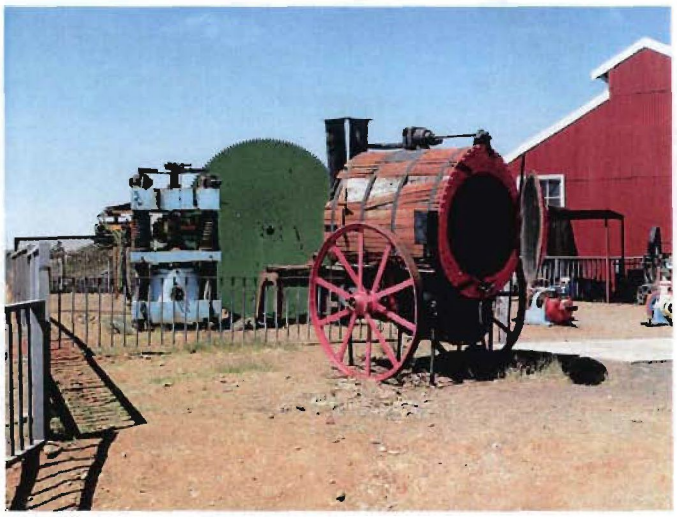


Figure 3.12: Old mining equipment, Big Hole, Kimberley

Figure 3.13: Mining equipment, Big Hole, Kimberley

In an e-mail communication, Whitfield (2004) made the following comment: "*South Africa does not have a history of formal geological conservation. Indeed, at present it is a barely recognized aspect of geoscience. Our first step must be to start with the fundamentals - the sites or places of geological importance or significance – and to create an inventory of geosites, and to classify them in terms of agreed criteria*". The Geoconservation and Geotourism Committee of the Geological Society of South Africa (GSSA) started the geosite program in 2005, in collaboration with the Council for Geoscience (CGS), and yet all of the

above-mentioned international geoconservation principles and programs above should be applied in South Africa.

Figure 3.14: Coco pans with kimberlite diamond ore, Big Hole, Kimberley

3.7 EDUCATION THROUGH GEOTOURISM

In other parts of the world, a tremendous effort is made to use geotourism for geo-educational purposes. Geosites, old mines, caves, geomuseums, geo-exhibitions, geotrails and geoparks are all used for the visual learning experience. Geolectures, geoworkshops, geoconferences and geocongresses, as well as leaflets, books, videos, CD-ROM's and websites, are very important forms of communication. The most critical aspect is interpretation for visitors and tourists. Geology cannot be explained to the nonprofessional as it would be to other geoscientists (http://gfx.vulcania.com/UserFiles/File/espaces/scolaires/ressources_themes/guide_enseignants/le_dossier_pedago.pdf). Geotourism does not stop at geology, but also includes industrial archaeology (for example, Kimberley) and mining. Where possible, these experiences should be learned from and the learning applied in South Africa.

One of the best examples where museums are used for educational purposes is at Vulcania Park 15 km west from Clermond-Ferrand, France. It is a unique man-made volcanological museum park with the motto, "*L'aventure de la terre*" (Adventure of the Earth). When the main building of Vulcania is entered, an exceptional natural setting is entered, that of another universe, a volcanic environment. The Great Crater, 35 m in depth that shows 30 000 years of lava eruptions, is a feature.

The mysticism and real force of volcanism such as cloud sand flames of a real volcanic eruption can be experienced by descending progressively down the crater. The building consists of several stories (levels) where all aspects of volcanism are displayed as well as

volcanic rock samples, simulations and film shows. The benefits for agriculture, building industry and mineral deposits are explained. In the open space outside the main building, there are two open-air geological gardens where geotrails can be experienced (VULCANIA. L'AVENTURE DE LA TERRE. DOSSIER PÉDAGOGIQUE. GUIDE POUR LES ENSEIGNANTS. 2006: http://gfx.vulcania.com/UserFiles/File/espaces/scolaires/ressources_themes/guide_enseignants/le_dossier_pedago.pdf). This museum is to a certain extent similar to Maropeng because the main goal is to educate people. In Vulcania the emphasis is on geology and at Maropeng it is on evolution.

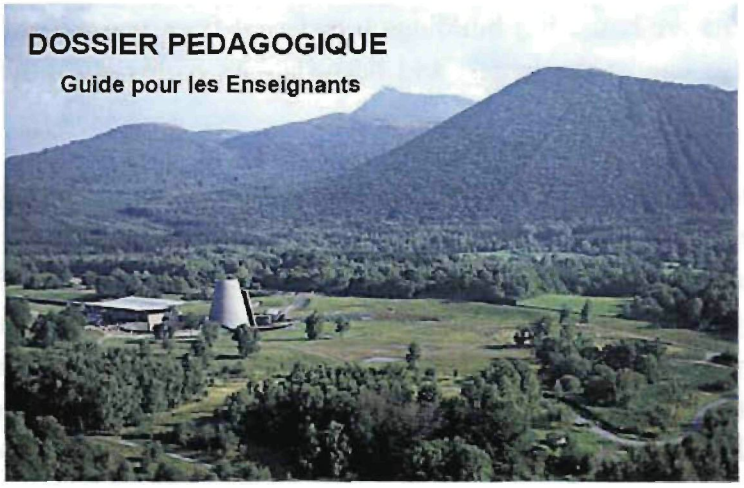


Figure 3.15: The Vulcania Museum that resembles a volcano, Clermond Ferrand, France (http://gfx.vulcania.com/UserFiles/File/espaces/scolaires/ressources_themes/guide_enseignants/le_dossier_pedago.pdf)

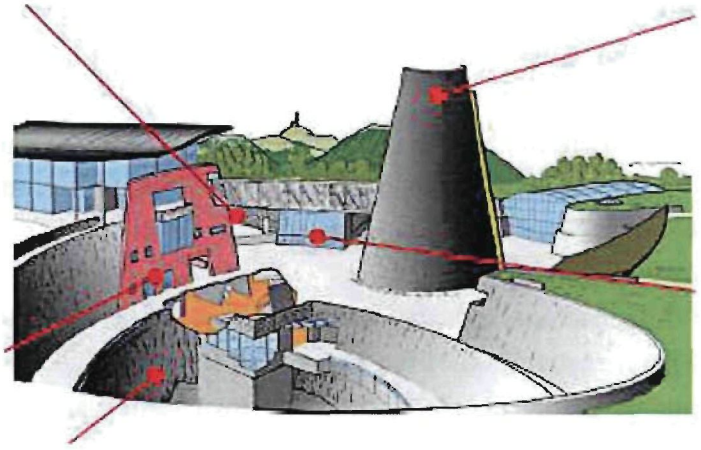


Figure 3.16: Diagram explaining The Vulcania Museum, Clermond Ferrand, France. There are also several underground levels with various volcanic displays (http://gfx.vulcania.com/UserFiles/File/espaces/scolaires/ressources_themes/guide_enseignants/le_dossier_pedago.pdf)

At the Big Pit Mining Museum in Blaenafon, South Wales, the mine was developed into a tourist attraction to revitalise the area and to advance the education of the public in the history of the coal mining industry in Wales. A museum (both underground and on surface) at the colliery demonstrates past and contemporary mining methods. After gold was discovered in Alaska (USA), in the Klondike area, a mining town developed. At present, it is managed as the Klondike Gold Rush National Historical Park, a unit of the US National Park System. Another example is the mining town of Val d'Ór in Quebec, Canada. At Hannans North in Kalgoorlie-Boulder, Western Australia the tourist mine, established on the original mine site, provides a glimpse into 100 years of mining history. Visitors can be taken on an underground tour, but it far exceeds one's own Gold Reef City's underground experience. Displays and exhibits are housed in buildings transferred from various old mine sites. The tourist mine has also one of the largest and best displays of historic mining equipment in Australia.

In South Africa, Johannesburg, Barberton, Pilgrim's Rest, Cullinan and Kimberley are all former mining towns. The African Gold Zone, Africa's first internationally competitive gold jewellery manufacturing facility, was recently established on the Rand Refinery property at Germiston. Much more should be done to promote and develop geotourism in these places. Educational aspects to be considered could include geoscience educational activities, curriculum guidelines for geotourism management education, museums at geosites, geotrails, open-air geological museums, information centres, guided excursions, exhibitions and formal education.

Wight (1993:54-66) analysed, on the basis of sustainable tourism, guidelines that have been developed by The Ecotourism Society and by The Ecotourism Association of Australia. Principles on which the geotourism experience should be constructed (adapted by the researcher (2008) in Rátz, 1996: 1-5) should take into account the following criteria:

- Do not degrade the georesource. It should be developed in an environmentally friendly manner
- Provide long-term benefits to the georesource, the local community and industry (benefits may be conservation, scientific, social, cultural, or economic)
- Provide first-hand participatory and enlightening experiences
- Involve education among all parties - local communities, government, non-governmental organisations, industry and tourists before, during and after the trip).
- Encourage all-party recognition of the intrinsic values of the georesource
- Involve acceptance of the georesource on its own terms, and in recognition of its limits, which involves supply-orientated management
- Involve understanding and involve partnerships between many players, which could include government, non-governmental organisations, industry, geoscientists, and locals (both before and during operations)
- Promote moral and ethical responsibilities and behaviours towards the natural and cultural environment by all players.

3.7.1 GEOSCIENCE EDUCATION ACTIVITIES

Wandersee and Clary (2005) report that three US public fossil parks (in Ohio, New York and Iowa) have embraced educational missions and allowed the public to collect and actually to keep the fossils they found. The new parks moved beyond exhibiting fossils to allowing the park visitor to have a direct, tangible and authentic geobiological field experience, typically culminating in the visitor's identification and ownership of a small number of personally collected fossils. A site-based, qualitative, comparative geoscience educational analysis of the strengths and weaknesses of the first three parks was presented at the 2004 International Geological Congress. A fossil park design model for others contemplating the establishment or instructional use of such parks was subsequently developed. Today there are five specially developed, public fossil parks in the US. All are owned and operated by city or county governments, or by non-profit organizations. Each considers its primary mission to advance geoscience education.

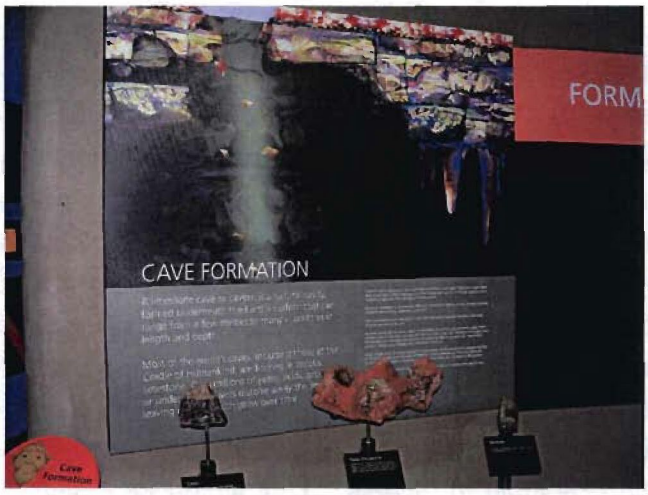


Figure 3.18: Explanation of cave formation, Tumulus Building Exhibition Centre, Cradle of Humankind (COH)

An on-site, multiple case study research was conducted on the two newest US fossil parks. Both are located in small towns: Trammel Fossil Park in Sharonville, Ohio (population 13,000), and Fossil Beds Park in Fossil, Oregon (population 430). The former site is Ordovician in age, with four fossiliferous marine formations. The latter is an Oligocene lakebed and contains approximately 35 species of identified plant fossils. The focus in both case studies was on identifying the steps of successful fossil park development that lead to a sound informal geoscience education program, based on principles of active, meaningful and mindful learning. It was found that each town had developed a collaborative, community-driven, pedagogically innovative, field-based geotourism venue. Each was noteworthy in specific ways for its geoscience education potential as an outdoor teaching laboratory. The results of actual fossil collecting and interpretation at each site and evaluating the opportunities was to discover common fossils and to learn geobiology in the field. The

study's findings outline the steps of educational program development and support underlying each park. While one site utilises a very effective interpretive signage system that aims to be self-teaching, the other employs a helpful on-site geological interpreter.

In one place, following the collapse of the timber industry, the town's entire economic recovery plan is now predicated on geotourism and geoscience education activities centred on its fossil park. In the other, the fossil park has become the enticing geoscience jewel of the town's park system. The two different fossil park program development approaches (for example, Wheeler County Oregon's Palaeo Project and Sharonville's university-city-local developer collaboration) could be replicated at other appropriate fossil sites. Fossil parks can offer scientific experiences to the public that contribute to the nation's scientific literacy.

A very informative site by Andrew Alden to inform the public about geology is available on the Internet (http://www.arc.govt.nz/volcanic). Various geological topics and articles (rock identification tables, minerals, geological maps, geological evolution, plate tectonics, earthquakes, volcanoes, mineral deposits, caves, fossils, sedimentary and metamorphic rocks, etc.), geotours and safaris, and even space geology can be downloaded.
Pemberton (2001) believes that to assist with the communication of the fascinating history of the Earth to the large majority of people, who find deep study truly daunting, the links between geodiversity and biodiversity should be emphasised. It would assist people to value the non-living environment. It would also facilitate a greater appreciation of natural diversity and provide a pathway for the public better to understand the complexities and wonders of geological history. Concentrating on communicating a geo-historian's attitudes, philosophies and practices to the wider community may not be the only approach, for the nurturing of a respect and appreciation of the earth's evolution and its building blocks should be attempted. The story of natural diversity, the links between geodiversity and biodiversity and how it has all evolved, needs to be explained to visitors. This would be a powerful way of improving communications regarding the earth sciences. The best places to do this would undoubtedly be in National Parks and other natural areas.

3.7.2 GEOLOGICAL MUSEUMS

A collection is a number of mineral, fossil or rock samples with aesthetic, historical or scientific value, or that is particularly rare (Verpaelst: 2004). Museums mostly display collections and these are primarily used for educational purposes and regular visitors are scholars, students, tourists and the public. In setting up an exhibition all details from the conceptualisation stage, designing and lighting to the final execution thereof must be taken into account. The accessibility to a museum collection is also the accessibility to the information associated with it. Education includes topics such as issues of interpretation, outreach programs, non-formal education and an understanding of the importance of these to the target audience. Visitor surveys show children to be a special category of target audience. When a new museum is planned, attention should be given to the museum architecture: museum types (building, theme or size types) and the design process of museums (location

and new/old building). Later architectural adaptation and expansion in museums is also necessary.

Jakubowski (2004) is of the opinion that natural history museums gather valuable collections. He believes that they play an important role in the protection of geoheritage and that this role is inherently associated with the fundamental mission of museums concerning the protection of natural and cultural heritage. For the purpose of methodology, two categories of the inanimate nature monuments are distinguished:

1. Immovable geoheritage (immobile monuments of inanimate nature) that cannot be removed from the surrounding environment and should be protected *in situ*
2. Movable geoheritage (mobile monuments of inanimate nature) protected *ex situ*, that is, within a museum.

There are scientific and didactic criteria of the valuation of the main types of museum collections constituting the movable part of the geoheritage. A new tendency in active preservation of geosites is indicated. It consists of the use of *in situ* museum techniques of conservation, exposition and of the construction of special museum pavilions and protective halls. Geological museums are found all over the globe. They have a very important role because minerals, rock specimens and fossils are being preserved and displayed in them. After collection, all the specimens are documented manually, perhaps digitally, and will then form part of the collections.

3.8 CONCLUSION

The chapter first looked at new concepts such as geotopes and geosites and their selection criteria as the basis on which geotourism are built. Geosites are features such as a landscape, a group of landforms, a single landform, a rock outcrop, a fossil bed, a fossil, caves, meteorite impact crater, volcano and even a mine site. A list of geosites in South Africa was compiled and they were classified according to various criteria as well as their selection criteria. A short overview of some of South Africa's most known and typical geosites and geo-areas was given, as well as a comparison with geosites in the rest of the world.

Geodiversity, geoheritage, World Heritage Sites, geoparks and the UNESCO World and European Geoparks Network were discussed and explained with examples in the rest of the world. A description of the better known and important geosites and geo-areas in South Africa was given. A comparison with geosites and geo-areas overseas followed. A World Heritage Inscription means that the site has to be of 'outstanding universal value'. A UNESCO World Heritage Site is a specific site can be nominated for the international World Heritage program. Geodiversity is a simpler term that is used for the geoconservation and management of abiotic heritage. It consists of the diversity of minerals, rocks, fossils, soils, landforms and geological processes that constitute the topography, landscape and the underlying structure of the Earth.

The origin and concepts of geotourism was firstly described from the definition of geotourism that is used in Europe, China and the rest of the world. The second one is the geographical concept that is used in the US. During the discussion of geotourism, it became clear that is a relationship with other types of tourism, that is, eco-, soft and hard adventure-, special interest-, wildlife-, heritage-, mining heritage, responsible- and successful tourism. In some cases, an overlap exits because mining heritage tourism is part of geotourism but not of ecotourism.

It was pointed out that, without geoconservation, there will be no geotourism. The World Conservation Union (IUCN) defined and subsequently inventoried six categories of protected areas. The World Heritage List ranging from cultural monuments to historic cities, to protected natural areas that span the whole range of tourism destinations, and different types of tourism were described. Geoconservation is a new concept that is practiced with great success in the rest of the world. The *"Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest"* of Strasbourg, France, 5th May 2004 was an effort by the European Union where the conservation of the geoheritage on a world-wide scale was discussed.

In 1872, Yellowstone became the world's first designated National Park. The literature-review also indicated that pro-active geoconservation in South Africa has not featured very prominently to date. Thus, in the interest of science, education and tourism, unique and typical geosites need to be identified, catalogued and prioritised with the aim being their protection. The National Geosites Database started only in 2005, and is administered by the Council for Geoscience (CGS) in Pretoria.

CHAPTER 4
GEOTOURISM DEVELOPMENT, SITE AND VISITOR MANAGEMENT

4. 1 INTRODUCTION

Chapter 4 will look at the development of geotourism, site and visitor management and how the various approaches and tools for the management of geotourism can be applied. Without attractions and destinations, there would be no need for other tourism services. A geotourism destination should be able to compete by involving social, environmental, economical, cultural, political and technological strengths. The steps to destination success described by Ritchie and Crouch (2003) will be interrogated.

In developing the conservation of geoheritage for a sustainable and integrated environment case studies from Finland, the US and Canada will be used. It will be shown how the "*Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance*" assists destinations with an interest in natural places to establish their natural heritage values and to manage them accordingly.

A new trend is the establishment of geoparks worldwide. They are being set up to conserve and manage geoheritage and, this will be discussed, in addition to the European and Global UNESCO Network of Geoparks. The conditions and aspects that are involved such as geoconservation, geoheritage, economic development, geo-education and management will be examined. The utilisation of geotourism products through, geological and mining museums, theme parks, geo-events and geo-exhibitions will then be discussed. The role of The South African Gold Panning Championships held annually at Pilgrim's Rest will be described as it is the only event of its kind in the country, so far. Exhibitions to explain geology to the public have been introduced in Europe and their introduction will be evaluated.

Because interpretation forms a vital part of geotourism in these places, this too will be examined. Another aspect that will receive attention is the role of interpretation as a communication tool directed at visitors for this can persuade people to become more environmentally and socially conscientious. It can also regulate visitor behaviour as a key strategy for managing environmental impacts.

4.2 VISITOR ATTRACTIONS AND DESTINATIONS

The tourism product concept was given as "*... an amalgam of many components, the attractions of the destination, the facilities at the destination and the accessibility of it*" (Middleton, 1979, as cited by Bennet, 1995:7). The tourism product is therefore an amalgam of many components, or a package, which forms a composite product. The main components

of the tourism product are perceived by the prospective tourist as an experience available at a price. This then leads to the addition of the image of the destination and the price to the consumer, as basic components of the tourism product (Bennet, 1995:7). Indeed, attractions are the most important components of the tourism system. They are the main motivators for a tourist trip, and are the core of the tourism product. Without attractions, there would be no need for other tourism services. In fact, it is doubtful if tourism as such would exist if it were not for attractions (Swarbrooke, 1997:3).

According to Walsh-Heron and Stevens (1990:3), a visitor attraction is a feature in an area that is a place, venue or focus of activity. It does the following:

- Sets out to attract visitors/day visitors from either residents or tourist populations, and is managed accordingly
- Provides a fun and pleasurable experience and an enjoyable way for customers to spend their leisure time
- Is developed to realize its potential
- Is managed as an attraction, providing satisfaction to its customers
- Provides an appropriate level of facilities and services to meet and cater to the demands, needs, and interests of its visitors
- May or may not charge an admission for entry.

It is because of the uniqueness of attractions that tourism is possible. Attractions may be either resource-based or constructed. The primary intention is to manage attractions as the following list implies. The aim is to give advice to some of the less intensive systems of management such as natural resources. To classify and define an attraction more precisely, the following criteria that relate to the management of the enterprise must be considered:

- It must be perceived and recognised itself as a tourist attraction
- It must be publicly marketed and promoted as the attraction
- On-site management and staffing must be provided; and
- The visitor must recognise it as a tourist attraction.

Primary geosites could be regarded as attractions and, when they are grouped together to form a geopark, they collectively can become a destination. This is, however a very simplistic assumption.

Swarbrooke (1994:222, 224) says that the product can be natural or manufactured, and can be a single attraction, a destination area, or even a whole country. Thus, the heritage tourism product is not heterogeneous. Some heritage is consciously owned and managed to attract tourists, while other heritage features are managed with the aim of reducing problems caused by unwanted tourism. Different types of organisations with different objectives control the heritage product. The profit motive is often the aim of private-owned attractions, while those in the public sector tend to be managed with wider social objectives in mind, such as

education and provision leisure facilities for the community. Some of the heritage products are very authentic, while others are less authentic.

Prentice and Light (1994:210-211) offer a classification of heritage attractions. With regard to the evaluation of interpretation comparisons between attractions of similar types, the researcher suggests that heritage attractions should be classified in South Africa as follows:

- Natural history attractions, including nature reserves, nature trails, geomorphological and geosites that include caves, gorges, cliffs and waterfalls
- Science-based attractions, including geological museums
- Stately and ancestral homes, including country houses, manor houses
- Towns and townscape, principally historic townships (Pilgrim's Rest), groups and buildings in an urban setting
- Old mines, mine shafts, mining equipment
- Socio-cultural attractions, including archaeological sites (Masorini, Thulamela)
- Countryside and treasured landscapes, including National Parks and other countryside amenity designations
- 'Rural' landscapes which may not be officially designated but are enjoyed by visitors
- Regions, including *pays*, or other historic or geographical areas identified as distinctive by their residents or visitors.

Dallen, Boyd and Boyd (2005:46-47, 59) are of the opinion that attractions are viewed as the primary elements consisting of activity places and their leisure setting, while the secondary elements focus on services aspects within a region.

Different categories of attractions

Many new types of heritage attraction emerged or were created because there is an acceptance that heritage is present across many environments. Heritage attractions should be developed for all possible environments provided only that they reflect the heritage attributes of their locations. Natural history museums, nature reserves, nature trails, aquatic displays, wildlife parks, zoos, caves, gorge cliffs and waterfalls all fall into this category.

Support services that operates at heritage locations

Because heritage attractions cannot exist by themselves, they require a good support service infrastructure around them to bring tourists to them and to cater for their needs while they are at the attraction. Thus, accommodation, food, shopping facilities and transportation should be developed. The support infrastructure is a very important element of supply and should be seen as being at least as important as the attractions themselves

The context within which heritage exists

Although they might already exist in the region, the economic role and development of regions and their scale should supplement the heritage attraction. Protected areas and or relatively untouched regions are important places to the natural heritage. Yellowstone Park

was established as long ago as 1872 and tourists have been drawn to such places because of the natural heritage they offer. National Parks and many protected spaces often represent the heritage landscapes of certain regions. This is certainly the case in most of the USA, Canada and New Zealand where most of the heritage features are from the natural environment. The Parks in Canada are valued as part of the national landscape. "*With their spouting geysers, towering plinths of granite, volcanic peaks, mountain ranges, valleys and lakes, wetlands, tundra deserts, and isolated outback regions, the National Parks in many countries rank as internationally renowned visitor attractions and often the most visited heritage* attraction.... *The grandeur of the naturalness of regions is an essential element in the heritage supply they can offer. As such, this type of supply is attractive to other types of tourism (for example, ecotourism) as Parks offer opportunities to observe, admire and learn about existing flora, fauna and the natural process*".

Dallen *et al.* (2003:19-60, 59 and 282) believe that "*Attractions should be developed in association with the support services they require. Failure to do so may result in the supply being underused, or for more popular attractions, an inability to cater for the needs of visitors*". Creating a new supply by adding extra dimensions to the supply from the heritage setting itself is the case of the development of the gold and gold trails in New Zealand at central Otago.

4.2.1 THE COMPETITIVE AND SUCCESSFUL GEODESTINATION

Although the discussion below is primarily about tourism, it can be successfully applied to geotourism in South Africa.

Goeldner and Ritchie (2006:436-438) are of the opinion that good planning must be based on a sound understanding of those factors that fundamentally determine the success of a tourism destination. The framework is shown in Figure 4.1 which includes nine major components:

1. Supporting factors and resources.
2. The core resources and attractors.
3. Destination management.
4. Destination policy, planning and development.
5. Qualifying and amplifying determinants.

6, 7. Comparative versus competitive advantage.

8, 9. Global (macro) versus competitive (micro) environment.

Weaver (2006:133-149) believes that tourist destinations are extremely diverse and that they each form spatial entities, having in common the characteristic of place that fundamentally dictates the way that sustainable tourism is engaged. Therefore, the pursuit of sustainability is critically influenced by factors such as cultural landscapes, scale boundaries, absolute and relative location and the fact that all geodestinations are positioned and influenced by a nested hierarchy of other destinations.

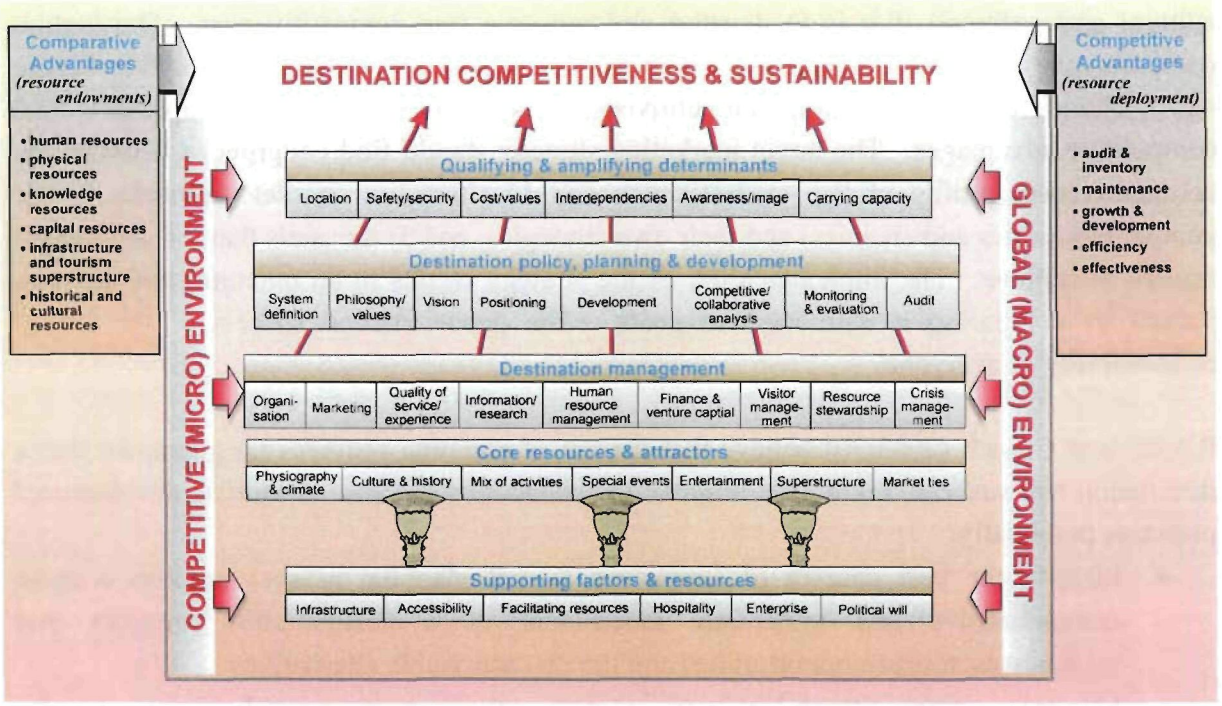


Figure 4.1: The Ritchie/Crouch model of destination competitiveness and sustainability (Goeldner and Brent Ritchie, 2006:437)

Ritchie and Crouch (2003:2, 9-29) state that "... *what makes a tourism destination truly competitive is to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations*". Therefore, a tourism destination should be able to compete by involving social, environmental, economical, cultural, political and technological strengths. The nature of competitiveness and sustainability is in constant evolution and therefore destination managers must monitor the surrounding world so that they are anticipating tomorrow rather than reacting to yesterday. A destination must try to achieve when it proclaims its goal of enhancing its competitiveness. Destination competitiveness must be viewed from a long-term perspective. Competitive advantages relate to a destination's ability to use its resources effectively over the long term.

Further, Ritchie and Crouch (2003:30) emphasise that the competitiveness of a destination derives from a combination of both its resources and assets (naturally occurring or created), which can be deployed to assemble the tourism product, and from the ability of the destination to mobilize these resources. Part of this ability to mobilise resources (that is, its competitive advantage) arises from the degree to which the destination has been able to chart a coherent, widely supported course.

They (Ritchie and Crouch, 2003:29, 49) go on to express the opinion that every destination must examine its ability to maintain all dimensions of sustainability (environmental, social,

cultural and political) if it is to develop and preserve true competitiveness. Destination competitiveness and performance are linked by several steps, which are illustrated in Figure 4.2. Therefore, geodestination competitiveness should combine both comparative and competitive advantages. The target marketing strategy should find congruence between the competitiveness profile of the geodestination and 1) alternative market segments, 2) the competition (allies and enemies) and their own strategies, and 3) the goals that the destination aspires to achieve. The implementation of the strategy results in an outcome that must be judged by comparing it with its own goals. The geodestination success is the shared responsibility of everyone.

Ritchie and Crouch (2003:30) believe that the act of planning provides no guarantee that a destination will succeed, but it does improve the chances of success. A tourism development plan can, potentially:

- Identify the best courses of action - a formal planning process requires a more comprehensive and systematic assessment of a destination's strengths and weaknesses, tourism opportunities and threats, and viable alternatives
- Maximise community and industry support - planning, if undertaken appropriately, provides an opportunity for all stakeholders to air any concerns and influence the destination's course
- Mobilise effort towards a shared goal - a plan acts as a communication tool to ensure that those involved in its implementation have a clear sense of purpose and direction, and an understanding of their role in the process
- Ensure the efficient use of resources - as resources are finite, their allocation among alternative, competing uses will result in different outcomes. Planning ensures that the resource allocation is made explicit.

The steps to destination success (Ritchie and Crouch, 2003:29) are shown in Figure 4.2.

According to Edgell (2006:88-89), a comprehensive inventory of potential rural tourism resources is critical to the success of any tourism project. Attractions can be classified as:

- Natural, scenic or environmental features including mountains, rivers, lakes, springs, beaches, forests, wildlife and farms. These attractions and activities associated with them, such as hiking, sightseeing, photography, nature study, hunting and fishing, could attract large numbers of visitors
- Cultural and ethnic attractions including unique lifestyles, archaeological sites, early settlements, museums and art galleries. They are popular with many tourists and occupy a high-growth area in today's market place; and
- Special events including community-sponsored activities designed to entertain, educate or allow tourists to participate. The events that often reach a wide audience may be connected to the history, culture and natural features of the community. They are growing in popularity as tourist attractions and most communities have the potential to use them and festivals to draw tourists to their area.

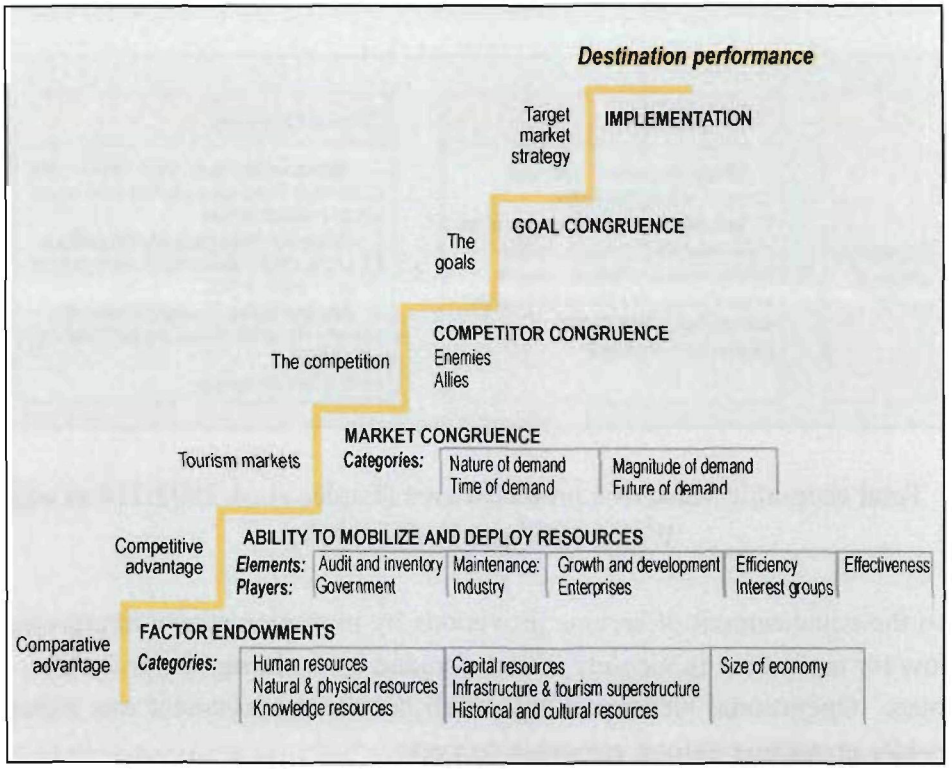


Figure 4.2: Steps to destination success (Ritchie and Crouch, 2003:29)

Eagles, McCool, Haynes and Christopher (2002:26) state that when capturing economic benefits, the following are necessary:

- Increasing the number of visitors
- Increasing the length of stay
- Attracting the richer market niches
- Increasing purchases per visitors
- Providing lodgings
- Providing guides or other services
- Hosting events
- Purchasing local food and drink.

Eagles *et al.* (2002:114) shows the economic value of a protected area as being ideally suited for geotourism as shown in Figure 4.3.

Ryan (2005:202-215) mentions that site managers are faced with operational considerations when seeking to protect both natural environments and create satisfactory visitors experiences. Site management of natural places involves several considerations:

- The nature of the terrain and the maintenance of physical infrastructure
- The needs of visitors
- The needs of environmental conservation and restoration

- The sustainability of the operational viability of the conservation agency.

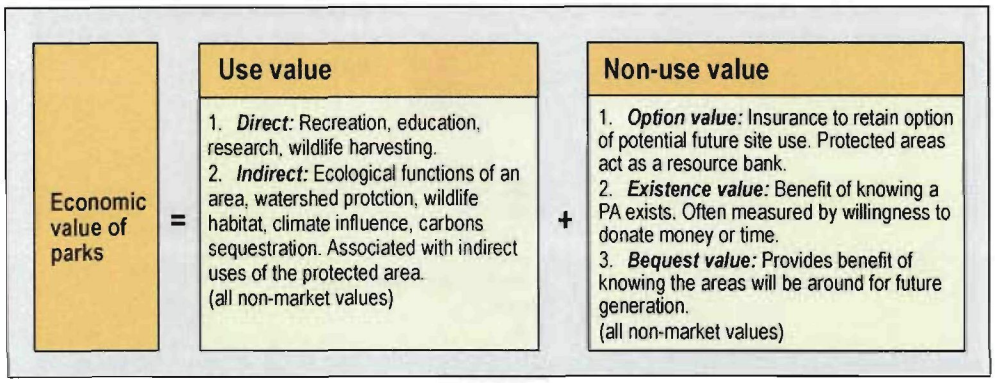


Figure 4.3: Total economic value of a protected area (Eagles *et al*, 2002:114 as adapted from Wells, 1997 and IUCN, 1998)

This leads to the enhancement of service provisions by introducing new interpretive services that will allow for more time in meeting visitor demand by building visitor centres, conducted talks and tours. Operational techniques by which geosite management can enhance visitor experience while protecting natural environments are:

- Marketing materials
- Footpaths and trials
- Signposting
- Zoning.

Marketing materials such as brochures, maps and booklets are important in shaping visitors expectations. The destination can be presented in glossy brochures with photographic and pictorial illustrations, and interpretations of data in terms of visitor experiences. Therefore, promotional material in bringing messages to the notice of the public is not simply an advertising medium, but rather forms part of the product itself. An industry can create expectations concerning experience where the main product is the experience of the place. Promotional materials then become tools that geosite managers can use to promote messages that are pertinent to the objectives of the site plans.

Information centres can play an important role because:

- They are sources of information about a place or the natural environment at the site itself
- They can become places of visitation in their own right. Through careful design and investment, the information centres can become proxies for the place to detain visitors for significant periods of time
- They may be places of revenue generation
- They are places of refreshment and convenience through the provision if restaurants, cafés, toilets and car parking are provided

- They can fulfil the role of gatekeeper to the attributes of the place.

Visual and audio presentations, museums, other exhibits, shops, souvenirs and refreshments are all used to retain visitors in the area. Footpaths and trails concentrate and direct the flow of visitors, acting as conduits by which sites of interest are connected. Signposts may either be simply directional or they may contain information. These too have a role to play in enhancing visitor satisfaction. They also reaffirm or provide reassurance by confirming directions, informing visitors of key geosites and providing data about these sites. In the UK, signposts often give information about:

- The length and average duration of a walk to a specific site
- The nature of the terrain, what type of walking gear might be required
- Some information about the geosite itself.

The design and placing of signposts should be examined and the strategic placement can draw people to the sign and away from vulnerable areas. Zoning can be used to identify areas that range from those with specific environmental fragilities, where human intrusion is restricted solely to scientific work, to those used for popular recreational purposes. Information provision, guidance, signposting and track design are matters for site protection and appreciation. In some extreme cases, they may be aimed at the preservation of life itself.

Ritchie and Crouch (2003:30-31) state that, "*The development of a destination tourism strategy should occur as a subcomponent of the community's overall social and economic development planning process for two reasons: (i) it will be conducted more efficiently because similar questions will need to be asked and answered in these broader contexts; and (ii) overall goals will not be achieved unless sectoral plans are in harmony*".

Kotler (1993:76, as cited by Ritchie and Crouch, 2003:31) suggests that the strategic marketing planning process provides several advantages because

- Places compete for resources as do businesses
- Dynamic, global forces affect their industries
- Places compete for tourists, conventions, educated residents, factories, corporate headquarters and start-up firms
- They must be excellent or superior in some special ways
- They must be market-conscious and market-driven as the attributes they develop today will affect their market position tomorrow
- If they will choose the wrong industries they are in the same position as companies that chose the wrong products.

Ritchie and Crouch (2003:49, 146-149) conclude that sustainable competitiveness is where a firm may not be regarded as competitive unless it is able to sustain any advantages it possesses over the long term; thus "*Competitiveness without sustainability is illusionary*". Thus, a tourism policy is needed for destinations at all levels and for all types of jurisdictions.

Sustainability and competiveness must be the primary goal of that policy. The primary components are the philosophy for tourism, and a long-term vision for a destination. This vision provides important guidance for the definition of specific objectives for a tourism destination and for the identification of any constraints to be observed as tourism is developed. These objectives, in turn, provide a basis for long-term development supply and demand strategies for the region. Policy formulation is the process by which all components of policy are defined.

A tourism policy is characterised by the following characteristics:

- It must focus on macro-level policies; that is, it must be concerned with societal views of the direction that geotourism development should take at the national and even at transnational level
- It must be designed to formulate policies with a long-term perspective
- It must concentrate on how critical and limited resources can best respond to perceived needs and opportunities in a changing environment
- It must recognise the intellectual nature of policy formulation, and so must incorporate tacit knowledge and personal experience as important sources of information, in addition to the more conventional methods of research and study
- It must encourage and stimulate organised creativity so as to avoid policies based on stereotyped or outmoded conceptions
- It must be constructed to permit and facilitate a continuing dynamic process requiring inputs from multiple sources
- It must break down traditional boundaries between disciplines and industry sectors in tourism
- It must relate policies of the tourism subsystem to those of the total socio-economic system of a nation or region of which it is part.

From the above-mentioned points it is clear that it must also engage industry as a strategic priority.

Tourism policy is defined as "*a set of regulations, rules, guidelines, directives and development/promotion objectives and strategies that provide a framework within which the collective and individual decisions directly affecting tourism development and the daily activities within a destination are taken*". Thus, tourism policy formulation can be regarded as a dynamic social process within which an intellectual process is embedded. From a terminology standpoint, the output of this process is commonly referred to as an overall strategy for ecodevelopment. 'Strategy' is used for the description of specific major actions that might be used to obtain objectives.

Tourism policy is important because it is a factor in ensuring the success of a tourism destination. There must be a clear idea of where it is going or what it is seeking to become in the long-term. It must also strive to create a climate in which collaboration among the many stakeholders in tourism is both supported and facilitated.

Tourism policy should fulfil the following functions:

- It defines the rules of the game - the terms under which tourism operators must function
- It sets out activities and behaviours that are acceptable
- It provides a common direction and guidance for all tourism stakeholders and within a destination
- It facilitates consensus around the specific vision, strategies and objectives for a given destination
- It provides a framework for public and private discussions on the role of the tourism sector and its contribution to the economy and to society in general
- It allows tourism to interface more effectively with other sectors of the economy.

Tourism policy affects the extent to which the day-to-day operational activities are successful, that is, marketing, event development, attraction operations and visitor reception programs.

Ritchie and Crouch (2003:130-144) discuss supporting factors and resources that are critical elements when enhancing destination appeal:

- Infrastructure: a foundation for successful tourism
- Accessibility: addresses the curse or blessing of a location
- Facilitating resources: human knowledge and financial capital
- Hospitality: resident attitude towards tourists and tourism
- Enterprise: the generation of human energy
- Political will: is tourism part of the political landscape?

Peters and Weiermaier (2000:22-29) discuss the basic management principles in the creation of tourism attractions. In Central Europe, much emphasis is currently being placed on making tourism attractions more attractive through innovative investments in technology, human resources and new tourism events such as theme parks. Increasing the attractiveness of tourist sites should be done through appropriate management of tourist attractions. Perceived freedom and intrinsic motivation are strong elements that shape the choices of contemporary consumers. Three core elements that are common to most successfully managed tourist attractions, events and/or fantasy parks are:

- Imagination
- Attraction
- Perfection.

The first step is to create new products, services and better 'experiences' and these must be translated into commercialised products. Psychological foundations of the service experience and the selling of 'quality' must be applied so that tourism managers can build a bridge between tourist's quality expectations and their perceptions of performance quality. The last step is the perfection of service operations by good planning.

In Europe, the geologists and geographers realised that when geosites are properly protected and managed, economic benefits could accrue. Previously isolated regions where many of the geosites occur could be developed as tourism destinations and at the same time, they could be used for educational purposes. Pforr and Megerle (2006:123-124) noted that the creation of geoparks can be seen as instruments to coordinate the many stakeholders towards the common purpose of sustainable regional development.

In conclusion, it can be said that a sustainable geotourism approach implies that the natural, cultural and other recourses of tourism are conserved for continuous use in the future, while still bringing benefits to society currently. This approach is very important because most geotourism development that depends on attractions and activities relate to the natural environment, and to a lesser extent, on the historic heritage and cultural patterns of the area. When these georesources are destroyed or degraded then the geotourist areas cannot attract tourists, and geotourism will not be successful. Most geotourists seek destinations that have a high level of environmentally quality simply because they like visiting places that are attractive, clean and neither polluted nor congested. One of the most important benefits of geotourism is that, if it is properly developed and based on the concept of sustainability, geotourism can greatly help to justify and pay for conservation of an area's natural and cultural resources. Therefore, geotourism can be an important means of achieving conservation in areas that otherwise would have a limited capability to accomplish environmental protection and conservation objectives.

This environmental planning approach is a basic technique in achieving sustainable development. It requires that the entire environment must be carefully surveyed, analysed and considered in determining the most appropriate type and location of development. Another important aspect of sustainable geotourism development is in emphasising community-based tourism. The community should be involved in the planning and development processes and in developing the types of geotourism that generate benefits to the local communities. Maximising benefits to local communities will result in geotourism being better accepted by them, and so they will actively support the conservation of local geotourism resources. A further point is quality geotourism as an achiever of sustainable tourism development. This refers to geotourist attractions that can offer good value for money, protect geotourism resources and attract the kinds of geotourists who will respect the local environment and society.

Geotourism development policies should be planned for long-term periods ranging from 10-20 years. This strategic planning focuses more on identification of, and less on the resolution of, immediate issues. It is more orientated towards rapidly changing future situations and how to cope with these changes organisationally. Short-term management, 'tactical management', is more action orientated and concerned with handling unexpected events.

The methodologies above can be implemented successfully in the development of geosites as destinations in South Africa by means of geotourism. A sustainable geodestination could

then be created. Some geosites can be developed into geo-attractions, even though only a few can become geodestinations such as, for instance, future geoparks. The latter could also include existing provincial and National Parks. In South Africa, there are many superb localities of geosites that could be utilised for geotourism. When they are being developed, the cornerstones of sustainability: environmental, the societal and economic principles must be applied. All the foregoing could be applied in South Africa with great success, and so will be discussed in the remainder of the chapter.

4.3 DEVELOPING THE CONSERVATION OF GEOHERITAGE FOR A SUSTAINABLE AND INTEGRATED ENVIRONMENT

According to the Geological Survey of Finland, the Earth's geological potential involves not only its mineral and energy resources, and land-use for construction, but also wildlife, and the educational and recreational values. Environmental knowledge extends to whatever places quality and content into people's lives. Environmental education aims to change people's environmental attitudes and, more importantly, their behaviour. Successful education and learning require:

- Setting up educational approaches, methods and tools
- Organised training for teachers, civil servants and pilot instructors
- Planning education of local people
- Producing educational material, and
- Planning educational sites.

(http://www.en.gtk.fi/Services/expert/environmental/)

It appears that the more educated a person is, the more the person travels – and then, the more of an educational experience is demanded by them from their travels. "*So why do people travel? People travel for pleasure and people travel for work. These are the two main reasons... People travel to see the world, to discover parts of it that they have only read about in book. Whatever the reason and whatever the framework, travelling is a form of adventure*". (http://www.travelaffiliation.co.uk/travel.html). Thus, geotravel is travelling to see the natural wonders of the world and nature is not a resource but a value as such.

Environmental education and geotourism can contribute to people's realisation of their responsibility for the environment and of their ability to integrate environmental considerations into all decision-making in an informed way. Geological and biological features may attract nature lovers and tourists, while natural attractions can also generate considerable services business. Therefore, tourism should be organised on a sustainable basis to ensure that these attractions give lasting pleasure to future generations. To develop geotourism, the following should be provided:

- Evaluation of regional nature values
- Mapping and popularisation of nature targets
- Innovative design of nature parks, trails and visitor centres

- Production of educational and tuition materials (guide books, site information, multimedia presentations, in-depth studies)
- Staff training.

Thus, geoheritage, landforms and natural processes should be conserved, enhanced and managed so that the best is safeguarded and made available as a scientific and educational resource. The population should also be educated about the value of geoheritage (http://www.en.gtk.fi/Services/expert/environmental/). Environmental education should therefore be taught from primary school onwards.

Carlson and Edwards (2007) state that Xanterra is the USA's largest National Park concessionaire, operating hotels, lodges, restaurants, retail, campgrounds and transportation systems in more than 20 locations, including:

- Grand Canyon - North and South Rims
- Grand Canyon Railway
- Rocky Mountain National Park
- Yellowstone National Park
- Bryce Canyon National Park
- Zion National Park
- Crater Lake National Park
- Death Valley National Park
- Petrified Forest National Park
- Everglades National Park.

Xanterra's Environmental Management System (EMS,) Ecologix, is the source of a range of innovations that are the focus of the 2007 case study by Carlson and Edwards. Ecologix is the logical integration of ecology and business, and it ensures:

- Continual improvement of Xanterra's environmental performance
- Compliance with all environmental regulations
- Incorporation of best management practices
- Flexibility to respond to property environmental priorities.

Carlson and Edwards (2007) believe that the most succinct reason for pursuing innovation in all of Xanterra's operations, through the Ecologix EMS, is captured in their mission statement where it is stated that:

- Business decisions should balance economic viability with ecological responsibility
- Waste must be reduce and recycled, energy and water conserved, and both guests and employees educated regarding environmental stewardship
- The sustainability of natural systems increased as good business.

Carlson and Edwards (2007) are further of the opinion that there is a belief within the organisation that sustaining natural systems through continuous innovation and improvement

is not only good for the environments in which they operate, but is also good business. Employees are required to hold management to explain for all operational decisions that relate to environmental performance. There is both a top-down mission and a bottom up monitoring mechanism to ensure continuous improvement in environmental performance, compliance with environmental regulations and responsiveness to environmental priorities. Ecologix is described as a hybrid Environmental Management System (EMS) as it includes aspects of compliance, sustainability and accountability. The structure of the EMS is indicated in Figure 4.4.

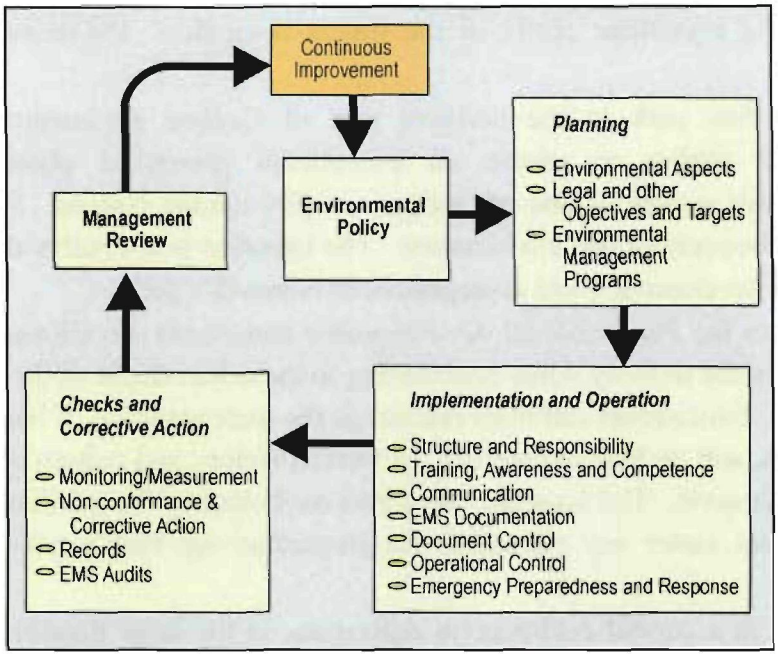


Figure 4.4: Structure of Xanterra's Ecologix EMS (Carlson and Edwards, 2007)

Carlson and Edwards (2007) conclude that Xanterra addresses significant environmental aspects by developing environmental policies, setting objectives and measurable targets, implementing actions that include activities such as inspecting a chemical storage area to ensure zero spills and providing a framework for continuous improvement (for example, by reducing energy use by 10 percent each year). A management structure exists that incorporates these objectives and targets into its programs and procedures. These are subsequently translated into work instructions to train employees in the EMS and to ensure competence in carrying out these responsibilities. As monitoring takes place, everything is documented so that progress towards goals is continually checked, and corrective action is taken when necessary. There are procedures in place to monitor and measure activities and for the handling of non-conformance. A periodic auditing and annual management review of the efficacy of the whole system is also part of the system process.

In summary, the overall benefits of Ecologix flow not only to the environment but also to the business performance of Xanterra. Increased environmental compliance, necessary

corrective action, measurement and monitoring of ecometrix, certification and external auditing, all place the company in a position of leadership regarding environmental performance. An innovative 'green' procurement program has led to reduced costs, liabilities and impact on the environment, and for Xanterra, has created a competitive advantage.

Cossette and Pomerleau (2005:11-12, 17, 26-27, 30, 51) relate how the Québec government proceeded with the creation of *Parc national des Pingualuit*, Nunavik's first, with a view to protecting one of Québec's exceptional and internationally acclaimed sites. The Pingualuit Meteorite Crater lays claim to uniqueness as much for its sharp profile, as for its geological 'youth' and for the crystalline purity of the waters it cradles. Objectives of the Park's creation are:

- With this first park in the northern part of Québec environment, the Québec government wishes to protect an exceptional geological phenomenon and a representative sample of one of Québec's largest natural regions. It also intends to facilitate discovery of this environment. The intention is to involve the Inuit with the protection, development, and management of Nunavik's parks
- Education in the *Parc national des Pingualuit* constitutes the ultimate tool to enable discovery of the territory while contributing to the achievement of the objectives of its protection. Educational activities encourage the understanding of landscapes, natural phenomena, and biological diversity, as well as history and culture of Inuit from this region of Nunavik. The founding objectives are bound by the mission of conservation and may not under any circumstances jeopardize the Park's natural and cultural heritage
- Recreation in a natural environment represents, in the same manner as education, a way to open up to the environment. As with educational activities, the recreational activities provided for in Québec Parks should be, as a priority, instrumental in achieving the mission of these territories which is to protect representative or exceptional elements of the natural heritage
- There is a strong will of the government to involve the Québec population and, in particular, strong regional forces, with the protection, management and development of the Park so that a natural, fertile territory be handed on to future generations. This objective found expression through the signature of an agreement on management of the *Parc national des Pingualuit* with Inuit organisations.

In managing the Park, the subjects most frequently reported in this matter dealt with respect towards Inuit culture, protection of Park resources, employment and training. The ultimate goal of the current master plan is to assure conservation of the territory for future generations and for its use to visitors. The Park's educational program will attract public attention to the territory's intrinsic characteristics and to integrating traits of the Inuit culture therein. Recreational activities of an extensive character can provide an intimate contact with this remarkable environment, thus fostering resourcing and discovery of pure nature while avoiding damage to the most vulnerable elements. Visitors will have a unique experience

here while discovering the Pingualuit crater, contemplating exceptional landscape, and experiencing a way of life that is unfamiliar to them. An achievement such as this will contribute to stimulation of tourist and economic activity in Nunavik, thus benefiting the entire population.

4.4 MANAGEMENT OF NATURAL AREAS

The "*Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance*" (http://www.ahc.gov.au/infores/publications/anhc/index.html) was drawn up in 2002. This Charter aims to assist everyone with an interest in natural places to establish their natural heritage values and manage them. A framework is presented for making sound decisions for both managing and restoring natural heritage places, based on the ecological processes that occur in natural systems. It also consists of a process that can be used to support and implement local, state and territory, national and international policies, agreements, strategies and plans. It does not, however, replace statutory obligations. In the Charter (p.3) it is stated that "A *natural heritage place is one that we believe we should keep for the future - because it is valuable to us...It may also be somewhere that we know is important because of what it is and what it can tell us scientifically. This place could be a desert mound spring, a fossil site, an ancient watercourse or a marine or bush habitat rich with life. We want to keep it because by doing so we will be protecting a resource of biological and/or geological information. This helps us and future generations to better understand the nature of our physical world and how we might live within its mean...Our natural heritage places are those we would want to inherit if we were to be born one hundred or one thousand years from now...By keeping our natural environment healthy we are investing in our own well-being, protecting the essence of Australia's unique character and securing an irreplaceable gift for the generations ahead*".

The Charter is divided into four parts:

- Part A: Definitions of terms that are needed to be understand
- Part B: Conservation Principles outlining the foundational principles on which sound natural heritage conservation is based
- Part C: Conservation Processes defining a range of processes that can be used in natural heritage conservation; and
- Part D: Conservation Practice outlining the steps that need to be taken when planning and implementing the plans for the conservation of a natural heritage place.

The diagram shows the planning process needed to be taken to conserve the natural values of places. In clarifying the concepts involved in each step, the reference numbers of the relevant articles are noted in the boxes. The conservation principles of articles 2–7 (p.7, 13) are the basis for all conservation planning and so must be considered in each step. The central theme of this process is to develop both a conservation policy and a practical conservation plan. The desired goals for conserving the natural significance of a place, in the short and long

terms, should clearly be stated. The following step would be to outline the management strategies and process that should be used and who would be responsible for the approval of the decisions and actions to be taken. This will form the basis of the conservation plan and how it will be implemented to ensure the conservation goals are met. The last, and one of the most important aspects, is that the results of the conservation plan must be monitored and reviewed continuously (p.6). The model is a very good one and could be applied to geoconservation in South Africa. The various steps in developing a conservation plan are shown in Figure 4.5.

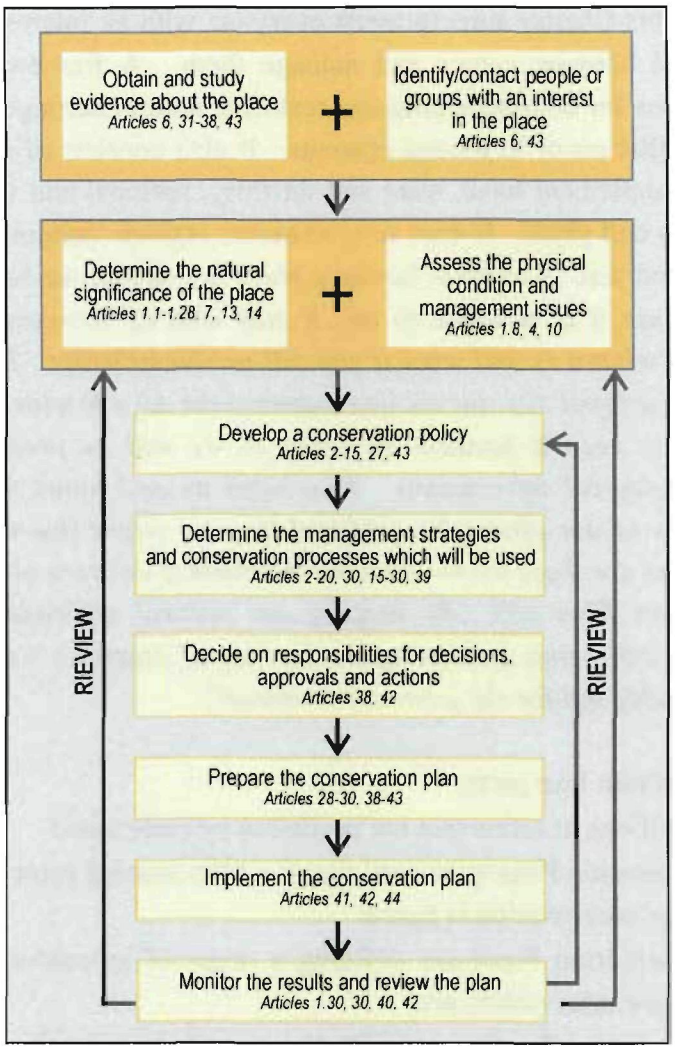


Figure 4.5: Developing a conservation plan
(http://www.ahc.gov.au/infores/publications/anhc/index.html)

4.4.1 MANAGEMENT OF NATURAL AREAS WORLDWIDE

Gray (2004:175-178) believes that the conservation movement began in North America. In 1864, the Yosemite Valley was proclaimed as the first protected area in the USA. In 1872, Yellowstone became the world's first designated National Park. It covers nearly one million

hectares of public land that have been provided for preservation from injury or spoliation, of all timber, mineral deposits, natural curiosities or wonders within the park, and for their retention in their natural condition. By this action, the land was withdrawn from settlement, occupancy or sale under the laws of the USA, and dedicated and set apart as a public park or pleasuring ground. At the northern entrance arch at Yellowstone, the words from the National Park's Act (1872) are inscribed: "*For the benefit and enjoyment of the people*". The protected area includes all the geothermal features that were known at that time. Indeed, the main reason for the creation of the Park was the protection of these geological wonders. Apart from the 200-250 active geysers, it is estimated that there are 10 000 individual geothermal features in the park. These also make the Park one of the greatest concentrations of geothermal activity on the planet. It also contains the impressive Yellowstone Falls, the Canyon of the Yellowstone River and one of the world's largest calderas. Because the area was protected for its geology, the wildlife within the park was protected at the same time. However, through the years the latter have became the focus for nature conservation efforts. After the Park's declaration, Mackinac Island (1875), Sequoia, Yosemite and General Grant (1890), Mount Rainier (1890) and Crater Lake (1902) followed. Canada's first National Park at Banff was established in 1885. An interesting point is that many of the early National Parks were established because of their scenic or geological values. But later, the overwhelming emphasis was on wildlife conservation. Perhaps, geoconservation now needs to be rediscovered?

There are specific guidelines for protected area management categories. Distinct categories of protected areas are managed mainly under the classifications of:

- I Strict protection (that is, Strict nature reserve/Wilderness area)
- II Ecosystem conservation and recreation (that is, National Park)
- III Conservation of natural features (that is, Natural monument)
- IV Conservation through active management (that is, Habitat/Species management Area)
- V Landscape/seascape conservation and recreation (that is, Protected landscape/seascape)
- VI Sustainable use of natural ecosystems (that is, Managed resource protected area).

(http://www.unep-wcmc.org/protected_areas/categories/eng/index.html). Eagles, *et al.* (2002) believe that some kind of tourism is likely to occur as a management objective in each category of protected areas, except category I (a strict nature reserve). (http://www.uneptie.org/pc/tourism/library/sust_prot_areas.htm)

4.5 GEOPARKS

It has become common in the world to set up National Parks to efficiently protect important and unique geological heritages that have been formed during the long history of the earth, for example, the Hawaii Volcano National Park, the Grand Canyon National Park in the United States, the Galapagos Islands National Park in Ecuador and the Glacial National Park

in Argentina. Human history and the history of the Early are, naturally, closely linked. Geosites are a common heritage of mankind. To maintain them intact is a responsibility and an obligation of countries and geologists all over the world. Just as human life is recognised as being unique, the time has come to recognise the uniqueness of the Earth, and it is imperative for people to foresee the future of the Earth based on learning about its past and its present. Learning to protect global geosites is the very basis of this long-term process. It becomes the best way to set up national geoparks to protect geoheritage (www.hceis.com/product/index/geology%20and%20geophysics/in%20national%20geoparks%20of%20china.htm).

Reynard, Berger, Felber, Heitzmann, Hipp, Hug, Imper, Jordan and Von Salis (2004:2) believe that there is a necessity to define clearly what geoparks are, to coordinate their development at a national level, and to define quality assessment procedures. A special Working Group dealing with Geoparks in Switzerland is currently undertaking a project of compiling such guidelines, for Switzerland in particular, but with universal relevance. The guidelines consider that:

- A Swiss geopark may be established in areas with rich and diversified geological and geomorphological heritage
- The geopark's area has to be clearly delimited and sufficiently large to allow the economic development of a community
- A Swiss geopark must have a clear structures and organisation
- A geopark project must present a concept for sustainable tourist development based on earth science heritage
- The sustainable tourist development of a Swiss geopark will be based principally on the creation of geotourist products and services
- A Swiss geopark should improve the conservation of geotopes (geosites) within its limits in collaboration with the cantonal administration
- A Swiss geopark should develop the pedagogic means for diffusing knowledge about geosciences
- A Swiss geopark should develop a concept for public relations
- A Swiss geopark is not a legal category for nature conservation; it may on the other hand overlay protected areas
- The promoters of a Swiss geopark are not authorised to protect their geological heritage, for this protection is carried out by the cantonal and/or communal administrations.

Certification is currently in preparation for assessing the quality of geoparks (http://www.geosciences.scnat.ch/downloads/docs/Abstract_SGM_2004.pdf).

Evans (2006:5) noted that geoparks are a relatively new international initiative established and endorsed by the United Nations Educational, Scientific and Cultural Organization (UNESCO). This is a label of distinction that has become synonymous with environmental

protection, sustainable development and citizenship. A UNESCO geopark status is only granted to regions acknowledged as having the most outstanding geological heritage and pedigree. According to the UNESCO definition, "*A Geopark should integrate the promotion of geological heritage of a region without adding any additional category of statutory protection to important natural sites. It recognises as a central principle the relationship between people and earth history as well as the ability of the site or region to serve a focus for economic development, primarily through geotourism*".

Figure 4.6: Information posters in Engi, Sargansenland-Walensee Geopark, Switzerland

In essence, a geopark is a multi-faceted branding and marketing tool that aims to encourage regeneration, sustainable growth and co-operation between wide-ranging networks of partners. These networks include environmental and heritage agencies, scientific establishments, heritage centres, local authorities, industry, schools and community groups. The partner organisations are encouraged to work together to develop the use of exceptional examples of geoheritage and to promote and improve access to these resources with innovative, yet environmentally sympathetic, schemes. To many people, the term geopark suggests a fenced, enclosed Jurassic Park-style visitor attraction, but this would be a most incorrect assumption. Geoparks typically comprise a regional plexus of exceptional geographically clustered examples of geology. It is a free attraction, and designated sites within the geopark will be improved, interpreted and linked with the development of a comprehensive, integrated educational strategy. Interpretation will aim to deliver wide-ranging subject areas at several interest levels with the intention of providing something for everyone (http://www.circa.gbif.net/Public/irc/gbif/pr/library?l=/published_articles/nhcwgn_15_pdf/_EN_1.0_&a=d).

Figure 4.7: The director of the geopark at a staple of rocks symbolising geology, Réserve Géologique de Haute-Province Geopark, France in 2006

In the IGU E NEWSLETTER (No 1, July 2005:12) it is mentioned that at the end of 2004, the International Geographical Union (IGU) Executive Committee decided to launch a new task force on geoparks, an initiative that would bring a geographical perspective to the recently developed UNESCO program for the management and protection of natural and cultural heritage. According to this particular UNESCO definition, a geopark is " ... *a territory with well-defined limits that has a large enough surface area for it to serve local economic development. It comprises a certain number of geological heritage sites (on any scale) or a mosaic of geological entities of special scientific importance, rarity or beauty, representative of an area and its geological history, events or processes. It may not solely be of geological significance but also of ecological, archaeological, historical or cultural value*". Since 2000, geographers and geologists have met on several occasions to discuss the pertinence of an interdisciplinary perspective on geoparks, linking geoconservation with endogenous local development. The latter has been one of the topics seriously undertaken by geographers during the last decades. The geographical perspective on geoparks includes integrating landscape as its main concept; requires a holistic approach and trans-disciplinary research to promote multicultural participatory bridges, and links local knowledge and practice into the research-development agenda (http://www.homeofgeography.org/).

Patzak (2000) describes a European geopark as " ... *a territory, which includes a particular geological heritage and a sustainable territorial development strategy supported by a European programme to promote development. It must have clearly defined boundaries and sufficient surface area for true territorial economic development. A European Geopark must comprise a certain number of geological sites of particular importance in terms of their scientific quality, rarity, aesthetic appeal or educational value. The majority of sites present on the territory of a European Geopark must be part of the geological heritage, but their interest may also be archaeological, ecological, historical or cultural*". Macadam (2008,

www.earthwords.fsnet.co.uk/geopark.htm) gives an updated list of World Geoparks in that, as of 22 November 2008, there were 58 geoparks in the world; 33 in Europe, 21 in China, and one each in Brazil, Iran, Malaysia and Australia.

Watson (2006:4-5) is of the opinion that the UNESCO 'Geopark' is a relatively new international designation that aims to promote the sustainable economic development of disadvantaged areas through geotourism. This concept was originally developed in Europe in 2000 by four founding geoparks, but was expanded in 2004 to become a global UNESCO-backed designation with distinct continental branches. The European Geopark Network now focuses on regions of outstanding local or national importance that cannot be included in the World Heritage List, and provides international recognition for locally or regionally important sites. The sites are listed primarily for their earth science interest but many also contain important cultural and wildlife sites. Geoparks must also have a definitive boundary and must be large enough to provide potential for *"true territorial economic development"*.

A European Geopark is a territory that has a special and rich geological heritage, both from the national and European perspectives, but which has also a sustainable territorial development strategy, usually supported by a European funding programme to promote development. The Geopark must have clearly defined boundaries and sufficient surface area for true, territorial, economic development. The Geopark must comprise a certain number of geological sites of particular importance, in terms of their scientific quality, rarity, aesthetic appeal or educational value. A prerequisite is that there should be enough geosites in a specific area to warrant the economic feasibility of a Geopark. The majority of sites present within the territory of a Geopark must be part of the geoheritage, but their interest may also be archaeological, ecological, historical or cultural. No destruction or sale of geological objects from a Geopark may be tolerated. The Geopark must be managed by a clearly defined structure able to enforce protection, enhancement and sustainable development policies within its territory.

A Geopark has a vital role in the economic development of its area through enhancement of a general image linked to the geological heritage and the development of geotourism. It has a direct impact on the territory by influencing its inhabitants' living conditions and environment. The objective is to enable the inhabitants to re-appropriate the values of the territory's heritage and actively participate in the territory's cultural revitalization as a whole. It also develops, experiments with, and enhances methods for preserving the geoheritage. Lastly, it must also play a vital role in educating the wider public about Earth Sciences in general and support scientific research into the geology of the area. The Geopark also supports education on the environment, training and development of scientific research in the various disciplines of the Earth Sciences, enhancement of the natural environment and sustainable development policies
(europeangeoparks.maestrazgo.org/presentation.htm,
www.sdt.shetland.org/Default.aspx?tabid=67).

Figure 4.8: The famous geosite consisting of ammonite fossils,
Réserve Géologique de Haute-Province Geopark, France

The Bergslag area in Sweden has rich ore deposits of copper, silver and, above all, iron, which caused foundries, forges, rolling mills, workshops and steel industries to develop as the basic industries of the area. As in many other parts of Europe, the mines were abandoned, one by one, over the past 30 years. The ecomuseum point of departure that focuses on the area's inhabitants and uses history as a tool for understanding and for influencing the present and the future, paved the way for a culturally exciting and revolutionary process of transformation in the area. The motive was to create an awareness of the region's importance through its history and to give people a self-awareness and enhanced sense of regional identity to arm them to meet the future and the changes that that future will inevitably bring with it. Although it is called an ecomuseum, a mining geopark would be a better description.

The Bergslag Eco Museum (http://www.ekomuseum.se/pdf/bergslagecomuseum.pdf) is described as a different kind of museum because it is a museum without walls or roof, without collections and without traditional exhibits. The museum consists of a geographical area of 7500 square kilometres, extending from the north shores of Lake Mälar up to the "*Finnish Districts*" of Dalarna County. Instead of displaying objects, the ecomuseum deals with structures, sites, settings and facilities. Structures remain preserved where they were originally built and are not moved to other sites. Important criteria for this ecomuseum are:

- Geographical space
- An authentic setting
- That it should be run and developed by people living in its 'catchment area'.

4.5.1 EUROPEAN GEOPARKS NETWORK

The localities of the 33 European geoparks in November 2008 are shown in Figure 4.9 below. The numbers are arranged to date of proclamation (2000-2008).

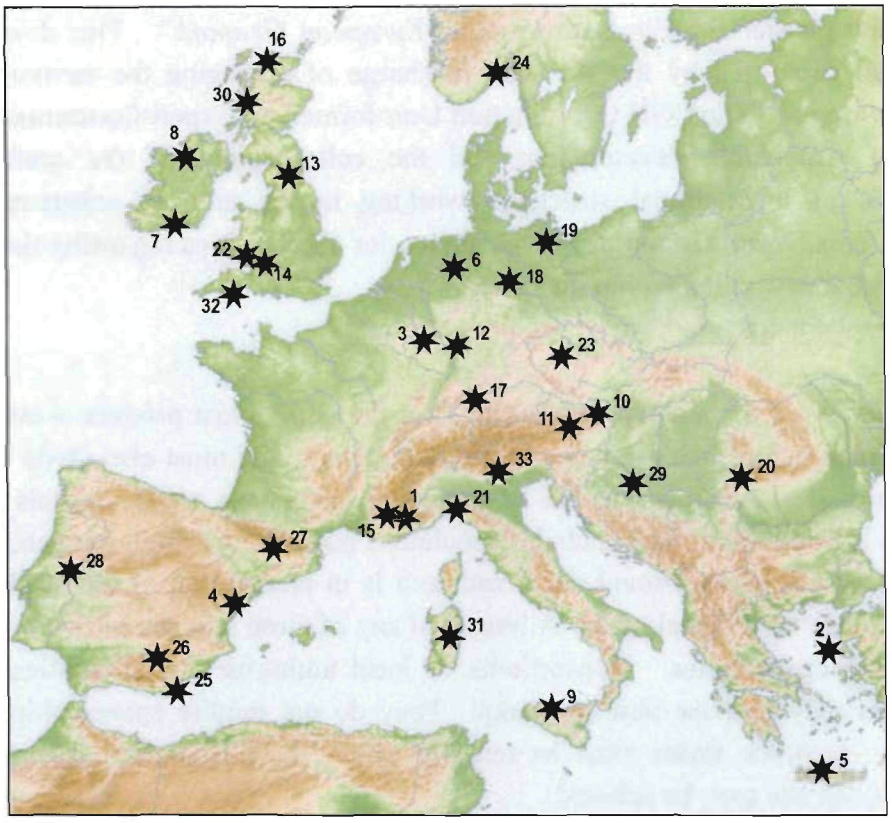


Figure 4.9: Locality map of the European Geoparks Network in May 2008 (http://www.fermanagh.gov.uk/pubuploads/egp-rollup2008-c.pdf)

Zouros (2004:165-171) described that the European Geoparks Network (EGN) was developed under the auspices of UNESCO in 2000 by the founder members in France, Germany, Spain and Greece. It was initially developed by geologists and the concept, and its criteria were taken seriously enough by UNESCO to develop and disseminate the International Network on Geoparks. A geopark must work within the EGN to further the network's construction and cohesion. It must also work with local enterprises to promote and support the creation of new by-products linked with the geoheritage in a spirit of complementarity with the other European Geoparks Network members. Bridging nature with culture, management with protection, and geoconservation with local sustainable development are the most outstanding characteristics of this new international effort. Nevertheless, its main feature is the active local participation for the establishment and administration of geoparks by linking education, participatory research, sustainable development (that is, geotourism) with geoconservation as their main goals. Geoparks may also bridge geosciences, ecology and the social sciences for protecting our world's heritage. The sites in a geopark must be linked in a network and must benefit from protection and management measures. A European Geopark must work within the EGN to further the network's construction and cohesion. It must work with local enterprises to promote and support the creation of new by-products linked with the geological heritage in a spirit of complementarity with the other EGN members. To obtain the European Geopark label, all requests for the use of the name must be accompanied by a dossier (prepared on the model of

the Application dossier for nomination) as a "*European Geopark*". This dossier must be completed and submitted by the structure in charge of managing the territory where the geopark is envisaged. The EGN Coordination Unit formed an Expert Committee made up of specialists in sustainable development and the enhancement of the geoheritage and representatives of international structures working in the area of enhancement of the geoheritage. This Expert Committee gives advice for all decisions regarding the nomination and integration of new parks within the network (www.europeangeoparks.maestrazgo.org/presentation.htm).

Geopark status is not a statutory designation, but the parks must produce a comprehensive management plan before being accepted into the network, and must also abide by a specific code of conduct. For example, the sale of geological specimens, rocks, crystals or fossils, at geopark sites is prohibited. This includes specimens taken from within the geopark, or from other geological sites from around the world, and is in recognition of the need to conserve geological heritage on a global scale. A breach of any of these specific rules could lead to the revocation of geopark status. Consortiums of local authorities, communities and private interest groups may propose new geoparks. They do not require sponsorship by national governments. Geopark status must be renewed every three years and if renewal criteria cannot be met, the site may be delisted (www.europeangeoparks.maestrazgo.org/presentation.htm, www.sdt.shetland.org/Default.aspx?tabid=67).

As an example, the Abberley and Malvern Hills Geopark (UK) has the following objectives and actions intended to accomplish them:

Geopark objectives:

- To conserve and enhance where appropriate, the geology, geomorphology and landscape of the geopark
- To promote the responsible collecting of specimens
- To encourage visitors to the geopark at levels which it can sustain
- To encourage safe use of the geopark by educational groups of all ages, and to provide a high quality range of educational information and services about the geopark
- To continue the already well-established gathering and dissemination of scientific information about the geopark
- To ensure that the geopark and all its attributes will be used responsibly
- To contribute where and when possible to the local economy and encourage involvement of the local community in geopark activities
- To ensure that the geopark plays a major role within the European Geopark Network

Key actions:

- Continue to work with agencies and landowners on practical geoconservation

- Target geotourists to visit out of season and away from overused locations
- Work with operators to develop themed packages
- Develop promotional links with Gateway Towns and interpretation centres
- Continue to develop a sustainable product range and not to sell geological specimens
- Continue to work with and inform councils and local community groups
- Continue to liaise with District and County Councils, landowners and other geoparks
- Enhance the robust information and communication strategy already in operation
- Target schools and geological groups to visit the geopark
- Continue to develop a quality geology and landscape trails program
- Continue to develop all of the above actions within existing official plans, strategies and guidelines.

(http://www.geocon.pwp.blueyonder.co.uk/factfile.htm, www.sdt.shetland.org/Default.aspx?tabid=67)

4.5.2 GLOBAL UNESCO NETWORK OF GEOPARKS

Dowling and Newsome (2006:253) noted that a more phenomenon was the establishment of [world] geoparks by UNESCO to promote places that integrated significant examples of the Earth's geoheritage, in a strategy for regional economic development. This move led to the establishment of an International Network of Geoparks. This movement could advance geotourism around the world. Through the international respect for, and reach of, UNESCO, geoparks have already made their mark on communities and regions. With greater awareness by individual countries, the geopark movement could become the benchmark for geotourism acceptance by governments, regions, communities and tourists.

Following the national and international initiatives, like the *"International Declaration of the Rights of the Memories of the Earth"* (Digne, France 1991), the IGCP, IUGS, ProGEO, Malvern Group, UNESCO's Division of Earth Sciences and the Council of Europe, an international group of experts on Geoparks recommended the establishment of a *"Global Network of National Geological Parks (Geoparks) seeking UNESCO's assistance"* in order to promote the three goals of conserving a healthy environment, educating in Earth Sciences at large, and fostering sustainable economical local development.

In February 2004, the UNESCO international group of experts assembled in Paris where the following items were discussed and decided:

- The establishment of a Global UNESCO Network of Geoparks.
- The acceptance of the Operational Guidelines for application on the global Network.

(www.europeangeoparks.org/isite/page/52,1,0.asp?mu=4&cmu=30&thID=0).

Turner, Creaser and McKnight (2006:1-2) believe that geotourism is part of a worldwide growth industry supported by people seeking a wider understanding of their environment. The new Global Geopark Network is seeking the protection and promotion of geosites while at the same time, fostering education, entertainment, fun, health and well-being for its

visitors. There is already an informal network of parties interested in forming geoparks in Australia and the South Pacific. Important aspects of geoparks are the links between the geology and the people, their stories; culture and history that can build into a sustainable source of geotourism, bring jobs to rural and indigenous people and, in turn, help protect sites of importance and promote geoheritage. A viable European Geoparks Network with 17 member countries is disseminating information on geological heritage by encouraging education and tourism linked to UNESCO. Similarly, the Chinese Government, through the Ministry of Land and Resources, has identified a network of 85 National Geoparks, twelve of which have been accepted by UNESCO. Several sites and regions, such as the Western Plains of Victoria and Mt Gambier region are actively pursuing the geoparks model as a way to provide jobs and sustain development, as well as protecting their geoheritage. MacAdam updated the above-mentioned data on 21 November 2008 (www.earthwords.fsnet.co.uk/geopark.htm).

Zhao Xun and Zhao Ting (2003:302-309) describe how, through conserving and developing geosites, favourable social, economic and environmental benefits were brought about, and created a positive climate for their inclusion in the World Geopark Network under the patronage of UNESCO. The creation of geoparks became a new growth point for local economies, and created a new field of employment. In return, geological popularization was well implemented and geo-environmental protection began to win support among local people. Active academic exchanges in this aspect have led to the establishment of many thematic research centres, and scientific-technological connotation of tourism has increased. By geoheritage protection, China developed a new field of co-operation with foreign geoscientists.

Setting up geoparks in developing countries has proven to be a feasible way to protect the geoheritage. In the new field of promotion of National Geoparks, geoscientists in China and abroad now collaborate closely, aiming at a common goal of global sustainable development. UNESCO has requested that geoparks should serve as a base for scientific popularisation. In this connection, China launched all round improvement of tourism information, such as the erection of sign posts, tourism route design, guide book compilation and tour guide training, in addition to the provision of museums. Scientific popularization has been integrated with tourism, and education with recreation. Geoparks in China became bases of scientific popularization for the public (www.wdcgeo.net/geopark/images/Sino_econ.pdf).

In a document, "*Guidelines and criteria for National Geoparks seeking UNESCO's assistance to join the Global Geoparks Network*", prepared in 2007 by Global Geoparks, it was stated that geoparks would promote Earth heritage and sustain local communities. The Network of National Geoparks had a landscape approach for geoheritage conservation, research and sustainable development. In the introduction to the guidelines documentation, it was stated, "*Geology and landscape have profoundly influenced society, civilization, and the cultural diversity our planet but until recently, no international recognition of geological heritage sites of national or regional importance, and no international convention*

specifically on geological heritage have existed. The initiative of UNESCO to support Geoparks responds to the strong need expressed by numerous countries for an international framework to enhance the value of the Earth's heritage, its landscapes and geological formations, which are key witnesses to the history of life". Following a decision of its Executive Board in June 2001 (161 EX/Decisions, 3.3.1) UNESCO was invited to support efforts of Member States to promote territories or natural parks having special geological features. National geopark initiatives that seek UNESCO's assistance would be required to integrate the preservation of significant examples of geoheritage in a strategy of regional sustainable socio-economic and cultural development to safeguard the environment (http://www.unesco.org/science/earth/geoparks/2007guidelinesJanuary.pdf).

The protection and sustainable development of geoheritage and geodiversity through geoparks initiatives, contributes to the objectives of Agenda 21, the Agenda of Science for Environment and Development into the twenty-first century adopted by the United Nations Conference on Environment and Development (UNCED, Rio de Janeiro, 1992) and which was reconfirmed by the World Summit on Sustainable Development 2002 in Johannesburg. The present geoparks initiative adds a new dimension to the 1972 Stockholm Convention concerning the Protection of the World Cultural and Natural Heritage by highlighting the potential for interaction between socio-economic and cultural development and conservation of the natural environment.

There are several criteria laid down for the establishment of a geopark wishing to join the Global Geoparks Network (GGN):

1. Size and setting

- A Geopark seeking to become member of the Global Network of National Geoparks will be an area with well-defined limits and a large enough surface area for it to serve local economic and cultural development (mainly through tourism). It will comprise of a number of internationally important geological heritage sites on any scale, or a mosaic of geological entities of special scientific importance, rarity or beauty. These features must be representative of a region's geological history and the events and processes that formed it
- A 'Geopark' needs to be a geographical area where geological heritage sites are part of a holistic concept of protection, education and sustainable development. The Geopark should take into account the whole geographical setting of the region, not solely including sites of geological significance. Non-geological themes can be an integrated part of the geopark, especially when their relation to landscape and geology can be demonstrated to the visitors. For this reason, it will be necessary to include also sites of ecological, archaeological, historical or cultural value. (In many societies, natural, cultural and social history is inextricably linked and thus cannot be separated)
- If the area of a Geopark will be identical to, or will partly or wholly overlap an area already inscribed, for example, on the World Heritage List or registered as a

Biosphere Reserve of the Man and the Biosphere Programme of UNESCO, it will be necessary to obtain prior clearance from the appropriate bodies of the said initiatives before submitting the application.

2. Management and involvement

- Prerequisite to any successful Geopark proposal will be the establishment of a management body and plan. The presence of impressive and internationally significant geological outcrops alone will not be sufficient. The geological features inside the Geopark area must be accessible to visitors, must be linked to one another and safeguarded in a formally managed park-type situation. The Geopark should be run by a designated local authority or several authorities having an adequate management infrastructure, qualified personal and adequate financial support
- The establishment of a Geopark should be a bottom-up process. It should be based on a strong multi task-force concept with political will and long-term financial support, together with professional management structures, which will adopt its own territorial policy for sustainable regional socio-economic and cultural development. Success can only be achieved through strong local involvement. The initiative to create a Geopark must therefore come from local communities/authorities with a strong commitment to developing and implementing a management plan that meets the economic needs of the local population whilst simultaneously protecting the landscape in which they live. Nevertheless, the concept needs to be endorsed at national level by the National Commission to UNESCO
- A Geopark shall provide organizational arrangements to involve public authorities, local communities, private interests, and both research and educational bodies in the design and running of the park together with its regional economic and cultural development plan and activities. This co-operation shall stimulate discussion and encourage partnerships between the different groups having a vested interest in the area; it shall motivate and mobilise local authorities and the local population
- The identity of a Geopark must be clearly visible for visitors. This will be achieved through a strong public relations concept including common branding/labelling of the sites that belong to the Geopark, the publications and all other activities taking place there
- Sustainable tourism and other economic activities within a Geopark will only be successful if they are carried out in cooperation with local communities. Tourism activities will have to be conceived specifically to match local conditions, and the natural and cultural character of a territory. They must fully respect the traditions of the local populace. To respect, reinforce and protect these local cultural values, will be a crucial part of the sustainable development effort. In many regions and countries it will also be necessary to involve the indigenous population in the establishment of a Geopark
- It is strongly recommended that advice be sought from the Geoparks Secretariat and its independent bureaux during the preparatory phases of applications. Furthermore,

the applicants should seek co-operation with respective Geological Surveys, local public and tourism bodies, local communities, universities and research bodies, and private interest groups. The applicants will be urged to broaden the composition of the start-up team in charge of the Geopark project. These groups should be representative of the scientific, conservation and socio-economic communities of the area. A wide local consultation process must involve the local population to facilitate local acceptance of the planned Geopark, and so develop a strong concept for the Geopark application dossier.

3. Economic development

- Sustainable development was defined by the World Commission on Environment and Development in "*Our Common Future*" (1987) as "*development, which meets the needs of the present generation without compromising the ability of future generations to meet their own need*".
- One of the main strategic objectives of a Geopark will be to stimulate economic activity and sustainable development. A Geopark seeking UNESCO's assistance must serve to foster socio-economic development that is culturally and environmentally sustainable. This will have a direct impact on the area involved by improving human living conditions and the rural environment. It will strengthen identification of the population with the area and trigger cultural renaissance, which in turn will aid direct protection of geological heritage
- Often, aspects of a region's cultural heritage will be linked to the geological heritage. Respectful of the environment, the establishment of a Geopark should stimulate, for example, the creation of innovative local enterprises, small business, cottage industries, initiative high quality training courses and new jobs by generating new sources of revenue (for example, geo-tourism, geo-products) while protecting the geo-resources of the Geopark (for example, encouraging casting, instead of sale of fossils). This will provide supplementary income for the local population and should attract private capital. 'Geo-tourism' is an economic, success-oriented and fast-moving discipline, forming a new tourist business sector involving strong multi-disciplinary cooperation.

4. Education

- A Geopark should provide and organize support, tools and activities to communicate geoscientific knowledge and environmental concepts to the public (for example, through museums, interpretive and educational centres, trails, guided tours, popular literature and maps, modern communication media). It should also allow and foster scientific research and cooperation with universities, and between geoscientists and the local populace
- The success of Geopark educational activities depends not only on the content of tourism programmes, competent staff and logistic support for the visitors, but also on the personal contact with the local population, media representatives and decision-

makers. Therefore, the aspects of wide community participation and capacity building on the local level (for example, training of visitor guides) will help to develop a wide range of acceptance of the geopark philosophy (and also the transfer of knowledge and information) in the population. It cannot be repeated often enough that the involvement of the local people is of primary importance for the successful establishment and maintenance of a Geopark

- Among the instruments that should available for the transfer of information will be events such as excursions for school classes and teachers, seminars, and scientific lectures for the environmentally and culturally interested public and for those residents who enjoy introducing their landscape to visitors. One of the main issues must be to link geo-education with the local context, therefore, local students must learn the importance of their geological heritage. Creating geo-curricula for primary and secondary schools, using the local information about geology, geomorphology and physical geography will all help to preserve the Geopark while at the same time reinforcing local awareness, pride and self-identity. Geoparks can be great educational tools at local and national levels
- Within the educational concept, museums, 'discovery centres', interpretive centres and other innovative new tools must be developed to promote the principle of geological heritage conservation, and the necessity of its safeguarding and archiving. The museums and centres should also serve by developing different educational programmes for visitors and local actors
- All educational activities should reflect the ethical considerations concerning holistic environmental protection.

5. Protection and conservation

- A geopark will explore and demonstrate methods and best practices of conserving those examples of geoheritage
- In accordance with national legislation or regulations, a geopark shall contribute to the conservation of significant geological features including:
    - Representative rocks
    - Mineral resources
    - Minerals
    - Fossils
    - Landforms and landscapes that will provide information on various geoscientific disciplines such as:
        - Solid earth sciences
        - Economic geology and mining
        - Economic geology and mining
        - Engineering geology
        - Geomorphology
        - Glacial geology
        - Physical geography

- Hydrology
- Mineralogy
- Palaeontology
- Petrology
- Sedimentology
- Soil science
- Speleology
- Stratigraphy
- Structural geology
- Volcanology.

A Geopark should explore and demonstrate methods and best practises of conserving these examples of geological heritage

- The management authority of the Geopark will ensure adequate protection measures, in consultation with relevant statutory bodies, to guarantee effective conservation and to provide means for physical maintenance, as appropriate. The sites will remain under the sole jurisdiction of the country in which the Geopark is situated. It will be the country's responsibility to decide how to protect the particular sites or areas, in conformity with their national legislation or regulations
- A Geopark will respect local and national laws relating to the protection of geological heritage. Its managing body should strongly discourage the selling of all elements of ornamental geological heritage, which may not be regarded as sustainable but it may permit, in certain circumstances, the limited (sustainable) collecting of geological samples for scientific and educational purposes from naturally renewable sites. It can be demonstrated that a sustainable approach in this question leads to higher economic benefit than the short-sighted selling of Earth heritage, minerals and fossils.

6. The global network

- The Global Network of National Geoparks provides a platform of cooperation and exchange between experts and practitioners in geological heritage matters. Under the umbrella of UNESCO and through cooperation with the global network partners, important local, national geological sites gain worldwide recognition and profit through the exchange of knowledge and expertise, experience and staff between other Geoparks. This international partnership developed by UNESCO, brings the advantage of being a member of, and profiting from, a worldwide network, as compared to a local isolated initiative. Members will benefit from the experience of other members of the network
- The network comprises all regions of the world and brings together groups that share common values, interests or backgrounds following a specific methodology and management. It further serves to develop models of best practice and to set quality-standards for territories that integrate the preservation of geological heritage in a strategy for regional sustainable economic development. The establishment of a Geopark brings sustainability and real economic benefit to the local populations,

usually through the development of sustainable tourism and other economic and cultural activities, in developing the sustainable development component parallel to its conservation efforts

Geoparks that are part of the Network will:

- Preserve geological heritage for present and future generations
- Educate and teach the broad public about issues in geological sciences and their relation with environmental matters
- Ensure sustainable socio-economic and cultural development
- Foster multi-cultural bridges for heritage and conservation and the maintenance of geological and cultural diversity, using participatory schemes and co-partnership
- Stimulate research when appropriate
- Contribute actively to the life of the network through joint collaborative initiatives (for example, communication, publications, exchange of information, twinning, participation in meetings, common projects)
- Contribute articles to the GGN Newsletters, books and other publications.

- UNESCO supports the development of this initiative, among others, in order to replace the geosciences on the agenda of politicians and decision-makers of the governments and local actors, as well as on the 'radar screen' of private enterprises. An important number of activities within Geoparks are being developed worldwide to increase partnership with the private sector, for example, the tourism industry. The private sector often requests the international cooperative framework that UNESCO can offer. UNESCO's umbrella will definitely raise the interest and awareness of government sectors in this effort, as the Organisation has a strong attention-gaining potential that will be used to its maximum extent informing its Ambassadors to the different Member States. This, in itself, will lead to a much better understanding of the reasons for, and support for local initiatives that want to join, the UNESCO Network
- The inclusion into the Global Network of National Geoparks would be a sign of recognition of excellence in relation to the present guidelines and will in no way imply any legal or financial responsibilities on the part of UNESCO. This relates also to the use of UNESCO's name and logo, which will need special authorization with respect to the regulatory framework of sponsorship of the Organisation. For approved network members, a special logo was created for the Global Network. The use of this logo and the mentioning of membership in the Global Network can be used only after the successful evaluation of the application and upon receipt of approval from the Global Geoparks Network Secretariat. The use of this common logo linked to the identity of the Global Network Members is strongly recommended and is essential to create a common image for all Geoparks throughout the world
- Should a member of the network wish to use UNESCO's logo ("*temple logo*") and name for a specific event or activity, it must obtain patronage through the National Commissions for UNESCO or receive special permission of the Director-General,

expressly authorized in advance, in writing. It is the responsibility of the managing body of the Geopark to avoid any misunderstandings in this regard.
(http://www.unesco.org/science/earth/geoparks/2007guidelinesJanuary.pdf)

Figure 4.10: Poster explaining the geology, Gerolstein, Vulkan Eifel Geopark, Germany. This Geopark is part of the Global UNESCO Network of Geoparks

MacAdam (2008) reckons that at November 2008, there were 58 Global Geoparks (informally the terms UNESCO Geopark, World Geopark and Global Geopark are used interchangeably) in 18 different countries. There were also 33 European Geoparks of which the best known parks are Lesvos (Greece), Eifel and Schwäbian Alb (Germany), Sargansenland (Switzerland) and Haute Province (France). China had 21 World Geoparks while there were only four Geoparks in the rest of the world: Araripe Geopark (Brazil), Qeshm Island Geopark (Iran) Langkawi Geopark (Malaysia) and Kaniwinka Geopark (Australia) (www.earthwords.fsnet.co.uk/geopark.htm, Updated 22 November 2008).

4.6 UTILISATION OF GEOTOURISM PRODUCTS

Geotourism products such as geosites, World Heritage Sites, caves, waterfalls, landscapes, museum collections, defunct and present producing mines, historical mining towns and geoparks can be utilised in various ways, for students, for the public, for visitors and tourists. Pralong and Reynard (2003:51-55) describe the tourist value and the kind of exploitation of geosites in tourist and recreational contexts. Certain specific target groups have different social, cultural and psychological characteristics that could be satisfied by geotourism. Depending on the demand, geotourism may be a form of tourism that is based on imagination and emotion that favours experience and sensations. It may also explain the natural environment by playing with its temporal and spatial dimensions and may provide opportunities for economic development. Different target groups (seniors, families and school groups) that may potentially be interested in cultural and natural landscapes seem to

constitute specific markets needing specific approaches. Therefore, on-site interpretation should be more adapted to the visitors' expectations (geohistory, adequate level of popularisation) and so a more original and striking way of communication has to be used. From a promotional point of view, geomarketing, a kind of image communication that explores the temporal and spatial dimensions of the rocks, could be developed. This will not only generate inquisitiveness among the selected target groups but should be clearly positioned to distinguish the product from similar destinations. Therefore, product communication must complete this marketing strategy with the creation, promotion and sale of specific and original products particularly during the European summer.

4.6.1 MINING MUSEUMS AND HISTORICAL MINING TOWNS

Many mining heritage sites were conserved and are now being used as tourist attractions. Examples can be found in Sweden, Wales (Blaenafon), Germany, Italy, Austria, Australia and Canada. The mining history of Røros (Norway), the historic centre of the town of Diamantina (Brazil), and the mines of Rammelsberg and the historic town of Goslar (Germany) were declared World Heritage Sites. The towns of Pilgrim's Rest, Barberton, Kimberley, Johannesburg (Gold Reef City) and O'Okiep are examples of the mining heritage of South Africa. The whole town of Pilgrim's Rest has been declared a museum.

There are only a few mining museums, and these are mostly found in countries that have a mineral/mining industry. Some well-known mining museums are:

- British Columbia Museum of Mining, Vancouver, Canada
- Mining Hall of Fame, Kalgoorlie, Western Australia
- German Mining Museum, Bochum, Germany
- German Slate Museum, Mayen, Germany
- German Volcano Museum, Mendig, Germany
- Roman Mining Museum Meurin, Kretz, Germany
- Big Hole Mining Museum, Kimberley, South Africa.

In the National Volcano Park of the in East Eifel, Germany, there are many examples of geosites that have geotourism values, for example, the German Slate Museum in Mayen. The old slate mine under the Genoveva Castle is now a living museum where it can be seen and experienced how slate, used for the roofs of houses, was mined and traded, and where the local population was protected in the old mine workings during the last World War (http://www.rathscheck.de/). The area are characterised by the many fire-belching volcanoes that once covered everything with incandescent lava. Geosites where these phenomena can be seen are the Laacher See at Mayen, the Roman Mining Museum in Kretz and the German Mining Museum and Basalt cave at Mendig. They are all well conserved, well documented and well promoted. Of special interest are the old mines where the Romans mined the volcanic material for building purposes, water wheels and other uses. In the museums, there are excellent displays of volcanism and the uses of volcanic material. Some of the material

mined was even shipped as far away as the Netherlands where they were used to construct the dikes that protect that country from the North Atlantic (http://www.vulkanpark.com/index.php).

Das Deutsche Bergbau-Museum Bochum (DBM) (The German Mining Museum) (www.bergbaumuseum.de) in Bochum, Germany, is a successful tourist attraction with more than 400 000 visitors annually. It is situated in the Ruhr area and is arguably the most important mining museum in the world. At the same time, it serves as a research institute for mining history. A mine headgear was erected over the main building with its collections ranging from mineral specimens to mining equipment. A tour can be arranged to the original coalmine underneath the museum. Clad in authentic miner's clothes, all the facets of coal mining can be seen and experienced. There is also a very well equipped museum shop where books and souvenirs can be bought. Geo-education is a very important part of the museum's activities for school children and visitors alike, and practical demonstrations of mining as well as lectures are offered.

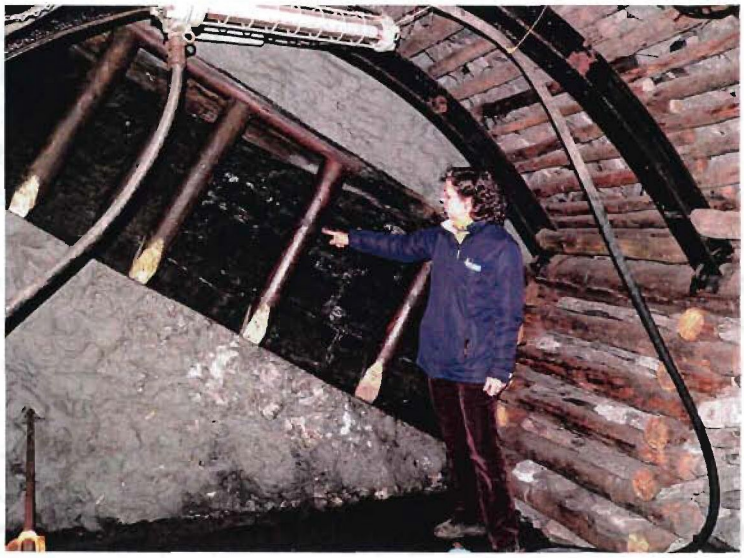


Figure 4.11: Coal seam stope, Visitor Coal Mine, Deutsches Bergbau-Museum (German Mining Museum), Bochum, Germany

The Mining Area of the Great Copper Mountain in Falun, Sweden, was inscribed as a World Heritage Site in 2001. Copper production in this region, recorded since at least the 13th century, is illustrated by the enormous mining excavation known as the 'Great Pit' at the town of Falun, planned in the 17th century. It has many fine historic buildings, together with the industrial and domestic remains of a number of settlements spread over a wide area of the Dalarna region, and now provides a vivid picture of what was for centuries one of the world's most important mining areas. Copper mining at Falun was influenced by German technology, but it became the major producer of copper in the 17th century and exercised a profound influence on mining technology in all parts of the world for two centuries. The entire Falun landscape is dominated by the remnants of copper mining and copper production

that began as early as the 9th century and only ended in the closing years of the 20th century. The successive stages in the economic and social evolution of the copper industry in the Falun region ranges from a form of "cottage industry" to full industrial production, and can be seen in the abundant industrial, urban, and domestic remains characteristic of this industry that still survive (http://whc.unesco.org/sites/1027.htm).

The British Museum of Mining (also called the Britannia Project), Vancouver, Canada, embraced the concept of 'telling the stories of people who worked in the mine and lived in the community' that would be typical of the hardship and achievements of Canada's mining pioneers. The aim of the Britannia Project is to celebrate the importance of natural resources to Canada's history and future, and to demonstrate how innovation, leadership and sustainability are providing a foundation for responsible mineral development around the world. The museum is sited on a major highway between Vancouver and Whistler. More than two million international and domestic visitors pass the Britannia site each year - visitors who will see the transformation of Britannia from a stereotypical mine site to an internationally recognised icon of renewal and sustainability. The rehabilitation of the Mill has been undertaken, the support of the community and region is assured, and the contribution of the museum's land to be used for this tourism experience has been agreed to. The Museum's management look forward to working with industry, government and the public at large to make the Britannia Project successful. The site of Britannia with its impressive mining infrastructure remains is an intriguing landmark, and makes testimony of both Canada's pioneering history and to the challenges of pursuing a sustainable future. Remediation of the site has taken place. A diverse array of stakeholders collaborates on the new vision for this National Historic Site. It is anticipated that the Britannia experience will engage visitors in the human and technological stories of the historic mining community and may then contrast these with a modern-day story of reclamation and the regeneration of the land in the innovative Earth garden facility (The Britannia Experience: Market assessment, (http://britanniaproject.com/images/Phase_II_Market_FINALREPORT.pdf, and BC Museum of Mining 2004-2005, http://www.bcmuseumofmining.org/pdfs/education2004-5.pdf).

The Blaenafon Industrial Landscape, Wales, has been declared a World Heritage Site. 'Big Pit' stands on the edge of Blaenafon, a town that had a vital part to play in the Industrial Revolution. This revolution transformed the landscape, culture and society of Wales, the UK and the world. Awarding World Heritage Status to the town and landscape marked the wider impact of Blaenafon's unique industrial heritage. The Big Pit National Mining Museum of Wales is a real coalmine, and one of Britain's leading mining museums. With facilities to educate and entertain visitors of all ages, Big Pit is an exciting and informative facility. The colliery buildings are open to the public and an exciting multi-media tour of the modern coalmine is available to go 100m underground with a real miner to see what life was like for the thousands of men who worked at the coal face. There are also museum exhibitions in the Pithead Baths (Big Pit National Mining Museum of Wales, (www.nmgw.ac.uk/geology/collections/2002/stone).

The Big Hole Mining Museum in Kimberley is the best example of mining heritage in the South Africa. According to Roger Ketley, the De Beers project leader, the *"Big Hole"* project was a cornerstone of the social investment program of De Beers in 2005/6. It aimed to provide a world-class tourist facility in Kimberley and to support sustained employment and business opportunities. It was designed to provide both an educational and a tourism resource. The project is a joint venture between De Beers, the provincial government, various municipalities, Northern Cape and Kimberley Tourism. It includes an historical precinct that tells the story of early Kimberley, and which incorporates 13 new, small businesses. It also includes a world-class visitor centre focusing on the story of the *"Big Hole"*, De Beers and diamonds. The management of the project has been undertaken by a multi-stakeholder Section 21 (not for profit) organisation. The R16.8 million Phase One investment, announced by De Beers in November 2003, started with the construction of a R2.3 million, 13-room guesthouse and a R3.8 million car park during the fourth quarter of 2004. This was approved in February 2005. The primary focus was the development of a world-class visitors centre, called De Beers Diamond World, focusing on De Beers, the Big Hole and Kimberley. Audiovisual effects simulate the underground experience while a spectacular upgraded rough diamond display, a viewing platform and interactive audiovisual displays enhance the visitor's experience. A diamond and jewellery store, coffee and curio shops complement a unique visit to Kimberley.

It is believed by De Beers that: *"Sustainability is the key to the success of the new tourist attraction, and the company's commitment to this has already been a catalyst for further investment in the area by others. There are plans for a conference centre, a 100 room hotel, a winery and further tourism-related development, potentially adding up to R300 million in further investment around the Big Hole"*.
(www.debeersgroup.com/..../Economics/Case+study+-+Kimberley+Big+Hole+tourism+project.htm, www.debeersgroup.com/.../Diamond+Journey/De+Beers+Global+Operations/Projects/Kimberleys+Big+Hole+Project.htm, http://www.thebighole.co.za)

4.6.2 THEME PARKS

Weaver (2006:94-98) agrees that the mega-theme park is a potent symbol of globalization, infantalisation, inauthenticity, alienation, stereotyping, technological utopianism, hypersanitisation, escapism, decontextualisation, standardization, frivolous consumerism, corporatism or some other aspect of post-modernist socio-cultural critique (Fjellman, 1992; Sorkin, 1992; Rojek, 1993 and Bryman, 1995, as cited by Weaver, 2006:95). Theme parks are usually established in exurban locations that seem to offer an ideal compromise between access to large amounts of visitors and a proximity to urban markets. The effect of this activity is, of course, to exacerbate urban sprawl.

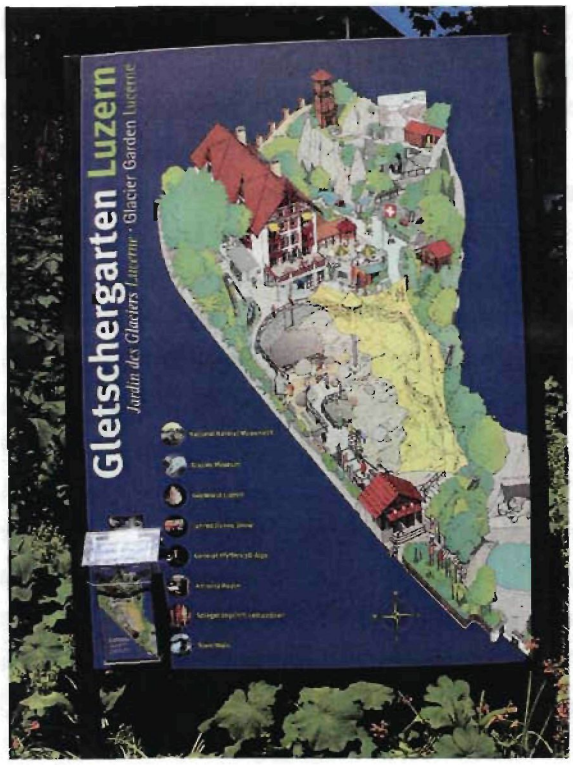


Figure 4.12: Gletschergarten (Glacial Garden) museum, Luzern, Switzerland. It is an example of a theme park

Gold Reef City is perhaps Africa's greatest entertainment theme park, created around an authentic 19th century gold mine. Mining themed-conferences, weddings and birthday parties can be all be arranged. The heritage tour (Jozi story of gold) includes the introductory movie "*Rich Beginnings - Our golden heritage*", museum houses, a gold pour demonstration, an underground mine tour, and all other attractions in the park. The museum houses are Mr. Ohlthaver's house (mine official), the Dowse house (home schooling) and the Oosthuizen house (Afrikaner home). Gold Reef City also has a secondary attraction such as a casino complex next to it. The following can all be experienced at the Gold Reef City theme park:

- Jozi's story of gold (heritage tour)
- Specialty shops
- Restaurants
- A Victorian hotel
- Conference facilities
- Amusement attractions
- Over 30 fun fair rides
- Kiddies' corner
- Farmyard
- Tribal dancing.

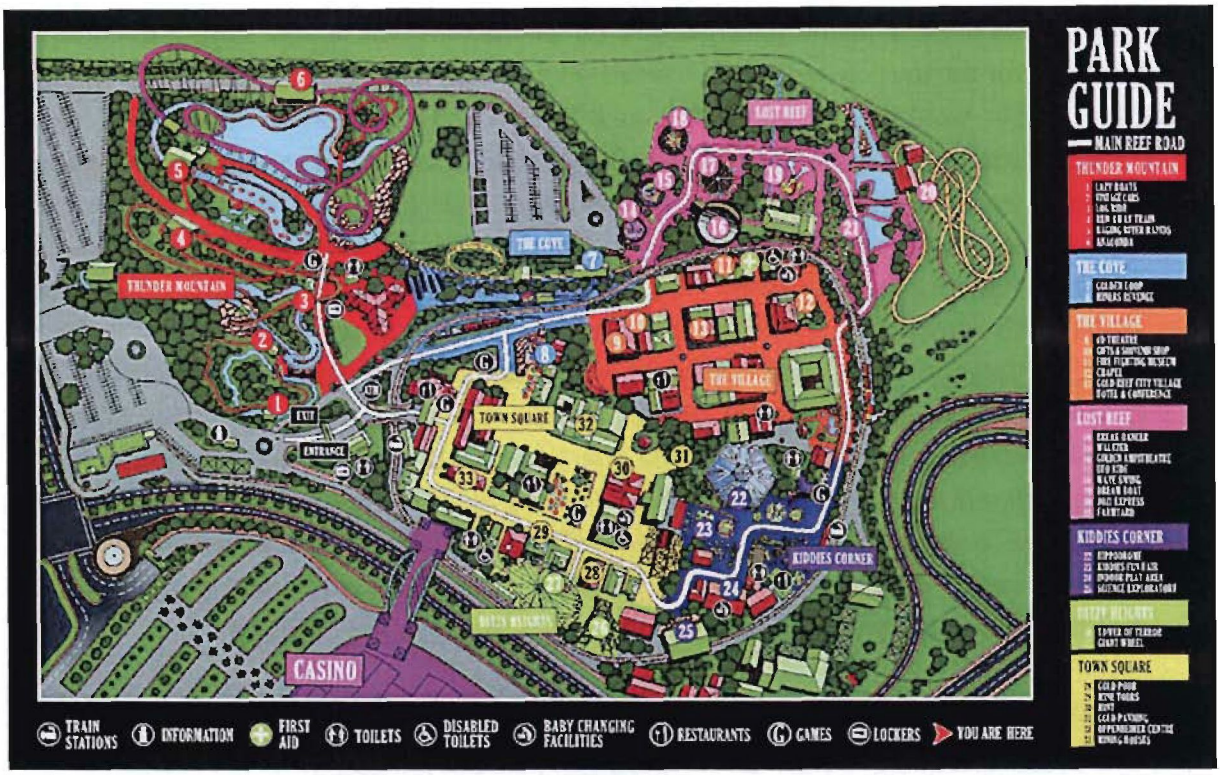


Figure 4.13: Map of Gold Reef City (www.goldreefcity.co.za in 2007)

Gold and the history of Johannesburg are intertwined. The discovery of gold in the late 1890's led to a gold rush by prospectors from all over the world to the area now known as Johannesburg. In February 1886, a prospector named George Harrison, who had arrived in South Africa from the Australian gold fields, was working as a builder on the Highveld farm, Langlaagte. One Sunday morning while he was out walking, he tripped over an outcrop. Fascinated by the quality of the rock he had stumbled upon, and realising that it was very old, Harrison broke off a piece, took it back to the farm and crushed it. He later panned the rock in a borrowed frying pan and noticed a gleam of gold. Harrison quickly reported his find, applied for, and obtained, a free prospector's license - which he promptly sold to Frank William Marsden for the grand sum of £10. This is the last history tells us of George Harrison, and while very few people know of his existence, he is, in fact, the man who sparked the evolution of Africa's biggest and most commercially active city – Johannesburg (http://www.goldreefcity.co.za).

On the 17th July 2007, it was announced that Rustenburg, in the North West Province, would soon have its own multimillion-rand theme park, with mining and technology as core themes. It will be built between the Olympia Park Stadium and the Rustenburg golf course. Rustenburg is located on the western limb of the platinum-laden Bushveld Complex, which contains most of the world's known platinum reserves. Modelled on some of the world's leading theme parks, Platinum City will be designed to highlight the past, present and future of South African mining and will feature alongside other mining tourist destinations, such as Gold Reef City, in Johannesburg, and the Big Hole, in Kimberley. As the name suggests,

Platinum City will be a theme park centred on platinum. One of the core attractions of Platinum City for the tourists will be the simulated mine experience at the start of the visitor's adventure. This would be a world first and bring the visitor to the "*coal face*" of an underground operation in a controlled and safe manner. An interactive, stand-alone, mining hall will trace mining through the ages, and will depict the impact it has had on the social history of South Africa. It was announced that a visit was intended to be educational and entertaining, with visuals, vibrations, dust, noise, playing on all the senses. The major objective of this experience is not only to amuse, but also to educate the park's guests. Therefore, "*Platinum City will become a metaphor for platinum, reflecting and complimenting the diverse attributes of this metal – dynamic, new, shiny, wearable and playing a key role in new technology. [The aim is] to design and build a purpose designed facility that will tell the story of mining, with the main focus being on platinum and its many uses in both the luxury side of the business as well as its practical applications like the use of platinum as a new energy and as catalytic converters in a new environmentally concerned world*" (Platinum City, www.miningweekly.co.za/article.php?a_id=114713).

4.6.3 GEO-EVENTS

The "*3rd International UNESCO-Conference on Geoparks*" was held in Osnabrück, Germany, from the 22-26 June 2008. The topic was communication and the goal was to create appropriate methods to raise the awareness of the geoheritage of the planet - far beyond a geopark's borders. The organisers stated that the Earth is a huge, dynamic system. Everyone is part of this system and while, admittedly, everybody is a small part, each person has the potential to destabilise the system. The history of the Earth shows that the planet is in a state of continuous change, its rocks show how past environments were formed, and fossils tell a story about the changes of ecosystems. In numerous concurrent lectures and workshops at Osnabrück, strategies were developed, answers were sought and solutions introduced. Before the conference, posters, education pamphlets and booklets from 32 World Geoparks were displayed at the 1st International Geoparks Fair. A wide-ranging, supporting program for school projects and public lecture courses ensured that the conference reached a wider public. Senior officials from local authorities, from national and international governments, professional geo-scientists and practitioners in the fields of tourism, education and cultural heritage associations attended the conference. Excursions to the highlights of the Geopark, Terra Vita and other geoparks, were offered afterwards.

The themes for the lectures and posters were:

1. **Communicating geological heritage**. How can one share geoscientific knowledge with non-scientists and encourage them to learn from the past?
2. **Young people and geoparks**. Which are the right methods for reaching children and young people with one's messages?
3. **Socio-Economic benefits of geoparks**. Can a region profit from geotourism and how can geoparks have an impact on society?

4. **Climate change and geoparks**. How can one influence people's habits, by looking at the distant past?
5. **Quality management in geoparks**. How to keep high standards in interpretation, education and infrastructure
6. **European Union and geoparks**. How are geoparks linked to the activities of the European Union, and how can the European Union (EU) support them?
7. **Tourism and geoparks**. How can tourism use the geosciences to achieve economic benefit?
8. **Presentation of new and aspiring geoparks**. New and aspiring members of the geopark community introduce themselves
9. **Criterion to join the Geopark family**. How do the different Geopark Networks operate and how can a region apply for membership?
10. **Bridging the gap between geology and soil sciences**. What can these interdependent topics do to improve the awareness of earth sciences?

Questions discussed were:

- How best to communicate the fascination of these topics to a wider public?
- How to integrate them in tourism offers?
- Can they enhance regional development?
- What is the task of the Global Geoparks in this process?

Figure 4.14: Wedding couple, Deutsches Bergbau-Museum (German Mining Museum), Bochum, Germany. This is a special event for mining employees to be married in a coal mine

The "*Inaugural Global Geotourism Conference 2008*" was held in the Esplanade Hotel, Fremantle, Western Australia, between 17-20 August, 2008. The United Nations proclaimed 2008 to be the *International Year of Planet Earth*. One of the central aims of the year is to '*increase interest in the Earth Sciences in society at large*'. To help achieve this goal, the Inaugural Global Geotourism Conference was a hallmark event which promised to set a benchmark for the tourism industry in relation to the development, management, marketing

and promotion of landscapes. In discussing and engaging all aspects of geotourism, the conference highlighted its status as a conservation tool, as an educational process and as a nature-based tourism activity. An understanding of how form and process are linked is important in geology and this can be delivered via geotourism. The unique conference included case studies that displayed the issues involved in the management and care of such attractions, and covered topics such as sustainability, impacts and environmental issues.

This unique conference aimed to:

- Build knowledge, networks and participation in the development of a sustainable geotourism industry
- Explore the positive links between geology and tourism as well as education and landscape management
- Foster geotourism as a better way to understand and acknowledge the Earth's geological attributes
- Include case studies which showcase the issues involved in the management and care of such attractions
- Cover topics such as interpretation, landscape and visual resource management, geoheritage, the arts, and environmental impacts.

(http://www.promaco.com.au/2008/geotm/)

Figure 4.15: Gold panners, The 2008 Gold Panning Championships, Pilgrim's Rest

Annually, the South African Gold Panning Association (SAGPA), in partnership with the local government's Department of Culture, Sport and Recreation (DCSR), presents and hosts the South African Gold Panning Championships at Pilgrim's Rest South Africa. Every year since 1997, South Africa has also been represented at the World Gold Panning Championships that is held annually in a different member country of the World Gold Panning Association. The 2005 World Gold Panning Championships, hosted by South Africa

at Pilgrim's Rest, was widely acknowledged by the international gold panning fraternity to have been a resounding success and a benchmark event. The number of participants at the South African National championships has grown from just 78 in 1997 to 707 competitors in 2006.

Figure 4.15: Visible gold after panning at The 2008 Gold Panning Championships, Pilgrim's Rest

The 2007 South African National Gold Panning Championships was held between 20-24 September. The event was as colourful and exciting as could have been wished, and filled with interesting activities and great competition prizes. The actual panning competition started on Saturday 22 September and the finals and prize giving l took place on Monday 24 September, which was a South African public holiday. Although this was a championship event, provision was also made for all who wished to participate, irrespective of age or gender. No special physical attributes were required other than enthusiasm and passion. It was an opportunity for each individual to experience one aspect of their heritage in an exciting and tangible way.

The year 2007 started with a sudden rush when a group of Swedish gold panners challenged South Africa's best to a gold panning competition. This event took place at the gold panning site at Pilgrim's Rest on Sunday, 7 January. The Swedish tour company donated the first prize of a full Kruger Rand and a second prize of a quarter Kruger Rand. The South African Gold Panning Association provided the third prize, an eighth Kruger Rand. The competition was intense with South Africa out-panning the Swedes. In June 2007, a group of three South African gold panning enthusiasts decided to attend the Czech Republic National Gold Panning Championships, and thereafter, the European Championships in Austria.

South African's participated at the 2007 World Gold Panning Championships at Dawson City in the Yukon, Canada, and this is where the championships took place from 20-26 August. Over the past 10 years, the SAGPA and the DCSR have succeeded in making it possible for more than 80 South Africans of all ages, genders and races to attend World Championships in Europe, Australia and Japan. Although South Africa is the youngest member of the World Gold Panning Association's 20 member countries, South African gold panning has, over the last decade, become a prominent part of the international gold panning fraternity. (http://www.sagoldpanning.co.za/index.htm, http://www.sagoldpanning.co.za/history.htm)

4.6.4 GEO-EXHIBITIONS

Exhibitions to promote geoheritage are an important mechanism to introduce and explain geology to the public and visitors. As part of its tourism programme, UNESCO World Heritage Centre hosted its first stand ever at the International Tourism Exchange (ITB), the world's largest travel and tourism trade fair, which was held in Berlin, Germany from 12–16 March 2004. UNESCO has hosted workshops at ITB every year since 1999, but this was the first time that the World Heritage Centre had a permanent presence to provide information on its tourism programme and activities. Presentations were made three times daily on issues such as World Heritage destinations, sustainable tourism at World Heritage Sites, the effects of tourism on the conservation of World Heritage Sites, individual conservation efforts, the trade's role. A single poster: "*The world's most outstanding sites*" describing cultural and natural sites, with a short description of the World Heritage Convention and its duties, was presented. World Heritage Site Managers were on hand to present information about their Sites as well as local products, services and activities that could be linked with Tour Operators attending the ITB. The Site managers also explained management issues to encourage better coordination between the tourism industry and World Heritage site management. Various forms of partnerships were presented, and interactive programmes were available to show visitors how the public and the tourism industry could participate in the conservation of natural and cultural World Heritage Sites. Current World Heritage partners such as the NGOs: The Nature Conservancy (TNC), the United Nations Foundation, and RARE, as well as the Grand Circle Foundation (founded in 1992 by Grand Circle Travel) and GTZ (one of the world's largest consultancy organisations for development co-operation), were also represented at the UNESCO stand and met with the general public and tourism professionals. Other tourism industry partners highlighted their collaboration with UNESCO World Heritage Sites and explained the 'added-value' this co-operation had brought to their corporate image
(http://whc.unesco.org/events/itb/index.htm,
http://whc.unesco.org/exhibits/expo/images/unesco_exhibition.pdf).
The Dartmoor Rock 370,000th Millennium Exhibition was held at the Postbridge Information Centre, Cornwall, UK between the 2-17th November 2002, as a celebration of Dartmoor's earth heritage that explored the fascinating story of the creation, moulding and uses of Dartmoor rock. At the exhibition, it was stressed that very little thought was given to the ground underfoot and yet it was fundamental to life itself - providing scenery and habitats,

soils for agriculture, and raw materials for building and industry. The Dartmoor landscape of Cornwall is dominated by rocks such as tors, gullies, boulder fields, stonewall and buildings and the exhibition showed the fascinating story of the creation and moulding of Dartmoor rock, starting nearly 400 million years ago and continuing to the current time. The interaction between geology, farming, wildlife, archaeology, industry and water supply revealed served as a reminder of humanity's dependence on the Earth's resources for its future (http://www.dartmoor-npa.gov.uk/dnp/darthome.shtml).

4.7 INTERPRETATION

In the document "*Communication and sustainable tourism*" at the *"E-Conference on the role of development communication in sustainable tourism*" in 2006, interpretation was defined as "*an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, or by illustrative media, rather than simply to communicate factual information*" (Tilden, Interpreting Our Heritage). Interpretation "*aims to create in visitors meaning, so that they can put a place into personal perspective and identify with it in a way that is more profound and enduring than random fact-learning can alone produce. Interpretation is meaning making*" (Sam Ham, Meaning Making - The Premise and Promise of Interpretation).

Every potential tourism destination has its own story and character, and to capture, interpret and present that story is the essence of sustainable 'place-based' tourism. It is this flavour that defines a location. The 'gel' that binds the tourism experience together ranges from product branding to visitor opportunities, resources and services. As such, its elements and many manifestations have real economic value. Interpretation can contribute to the quality of life for local peoples. It can also provide an educational tool, can contribute to community pride and sense of place and provide jobs such as tour guiding.

It is important to orient visitors to a destination before they arrive and once more when they are on-site. Orientation includes practicalities such as directional, local transportation, safety, event and business information (for example, restaurant location, hours, menu and price range). It can also include basic background information that visitors should be aware of - local customs, responsible environmental behaviour, basic history and geography, and the best ways to learn more about the place.

Thoughts, experiences, research or case studies that were shared at the conference were:

- How to involve the local population in building the image of their community and communicating their nature, culture and values
- How to support visitors in experiencing and understanding the place they are visiting;
- Communication methodologies, activities and tools that can be shared, adopted, and used to add value to the visitors' experience

- Methods for identifying and training local individuals most likely to succeed in interpretive activities; and
- How information provision to tourists can contribute to the respect and conservation of traditional values in host communities.

(www.devcomm.org/worldbank/admin/uploads/WCCD%20Files/STConcept%20Note.doc, (www.usaid.gov/our_work/agriculture/landmanagement/pubs/commun_sust_tourism.pdf:23-24)

The Scottish Interpretation Network (SIN) defines interpretation as " ... *a way of imparting messages about our cultural and natural environment in a memorable way. Interpretation aims to improve understanding and enjoyment through provoking interest, relating to experience and revealing something new. Interpretation is about stories*" (http://www.scotinterpnet.org.uk/).

In the document: "*Defining 'nature tourism': meaning, value and boundaries. 2001. Tourism New South Wales. Understanding nature-based tourism – No. 2*", other definitions of interpretation are:

- "*A special process of stimulating and encouraging an appreciation of the natural and cultural heritage of a region, as well as a means of communicating nature conservation ideals and practices*" (Queensland National Parks and Wildlife Service)
- "*A special process of stimulating and encouraging an appreciation of the natural and cultural heritage of a region, as well as a means of communicating nature conservation ideals and practices*" (Queensland National Parks and Wildlife Service)
- "*A means of communicating ideas and feelings which helps people enrich their understanding and appreciation of their world, and their role within it*" (Interpretation Australia Association)
- "*An educational activity which aims to reveal meanings and relationships through the use of original objects, first hand experience and illustrative media, rather than simply by communicating factual information*" (Nature Based Tourism Strategy for Western Australia).

The first definition sees interpretation from a visitor's perspective as a means of adding value to their experience because of the added interest created when more is known about an attraction or experience. The second definition places the responsibility back with the visitor to reach their own understanding based on their collective experiences (http://corporate.tourism.nsw.gov.au/corporatelive/downloads/industry/2_defining_nature_tourism.pdf).

Moscardo (1998:2) is of the opinion that, "*There is a close relationship between interpretation and tourism. Interpretation is concerned with providing information to visitors about the places they are in and encouraging them to appreciate and care for these places. Many tourist activities are focused on interpretation. Despite this relationship, little*

has been written about the functions and importance for the success of tourist attractions and products. [There are] ways in which effective interpretation can assist in the development of more sustainable tourism".

According to Weaver (2006: 185), interpretation is a distinctive form of education that goes beyond the simple conveyance of factual information through illustrative media. Ham (1992, as cited by Weaver, 2006: 185) believes that:

- Effective interpretation must be enjoyable and entertaining, bearing in mind that tourists are non-captive recipients who can walk away from or otherwise tune out messages that are not satisfying
- It must be made personally relevant to the audience through the use of analogies and metaphors and convictions and to issues and impacts that and by referring to their values and convictions and to issues and impacts that directly affects the listener
- Good organisation whereby a commentary is delivered around five or fewer issues. and
- The revelation of meanings and relationships requires that effective interpretation be thematic, that is, based on overriding messages about selected topics.

Dallen, Boyd and Boyd (2003:174, 195-235) state that interpretation is an education-based activity that reveals meanings behind historic sites, their people and their stories. It takes several forms that include plays and exhibits, printed brochures and maps, signs, audio presentations and guided tours. It has the ability to direct people away from sensitive areas and educate them about the need to behave respectfully. Essentially a process of communication or explaining to visitors the significance of the place they are visiting. Personal interpretation is the most effective way of interaction because it also educates and entertains visitors that cause them to reflect about environmental values.

According to Herbert (1989:191), the role of interpretation is "*to make people more aware of what they visit, to provide knowledge which increases their understanding and to promote interest which leads to greater understanding enjoyment and perhaps responsibility*". Three objectives are apparent:

- To educate people about the places they are visiting
- To provide an enjoyable, and even entertaining experience for visitors; and that
- These two elements work together to increase visitors; respect for heritage and take responsibility for caring for it.

Dallen *et al.* (2003:197) believe that education forms the basis of interpretation and that it involves both a learner and a teacher, and can be undertaken by either formal or informal means. If a visitor is more interested and knowledgeable, then better interpretive materials should be presented so that more learning will take place. Pleasure and enjoyment should be seen as dichotomous and as compatible with education and, through this approach, the visitor experience will be enhanced. An important concept is to add humour when it is appropriate.

Having regard to geoconservation, the underlying value of the educative and entertaining roles of interpretation is to:

- Enhance awareness and increase knowledge of geosites and landforms
- Create a sense of ownership
- Instil a desire to interact with relics of the past in a sustainable manner
- To have a special experience, and
- To stimulate the intellect.

Tilden (1957, as cited by Ham and Weiler, 2002:36) believes that interpretation is an educational activity aimed at revealing meanings and relationships to people about the places they visit and the things they see and do there. Ham and Weiler (2002:36) believe that interpretation lies at the heart and soul of what any good tour guide can and should be doing, wherever the guide may be. Interpretive tour guiding is very important. It is not just about face-to-face communication as guiding also includes non-personal or 'static' interpretation such as printed materials, signs, exhibits, self-guided walks and various electronic media. Interpretation is used by tour operators, as well as by resorts, lodges, attractions, theme parks, zoos, museums and visitor centres. Many of these use interpretive media to enhance the visitors' understanding, their appreciation of the environments being visited and the various nature and cultural phenomena experienced. Thus, these too are informational pathways to sustainable tourism.

4.7.1 TILDEN'S GUIDING PRINCIPLES FOR INTERPRETATION

According to Dallen, *et al.* (2003:206-207), Freeman Tilden was one of the pioneering experts in interpretation and he proposed six principles that have guided much of interpretative planning and the development of many interpretive programmes throughout the world since the mid-twentieth century. His ideas became standard practice in the cultural and natural fields of interpretation. The six principles are as follows:

1. Interpretation should relate to what is being displayed or described to something within the personality and life experience of the visitor
2. Information itself is not interpretation because the latter is revelation based on information. It is therefore critical to provide visitors with new information and transmit it in a way that inspires
3. Interpretation is an art that brings together many other arts, whether the materials that are being presented as historical, architectural or scientific
4. The primary objective of interpretation is not instruction but rather provocation
5. Interpretation should be more holistic rather than be made up of simple parts
6. Interpretation addressed to different visitor groups should follow a fundamentally different approach.

4.7.2 PRINCIPLES FOR SUCCESSFUL INTERPRETATION

In the document: "*Defining 'nature tourism': meaning, value and boundaries. 2002. Tourism New South Wales. Understanding nature-based tourism - No 2*" (http://corporate.tourism.nsw.gov.au/corporatelive/downloads/industry/2_defining_nature_tourism.pdf), successful interpretation typically reflects a number of key principles:

- People learn better when they are actively involved in the learning process
- People learn better when they are using as many senses as appropriate. It is generally recognized that people retain approximately 10% of what they hear, 30% of what they read, 50% of what they see and 90% of what they do
- Insights that people discover for themselves are the most memorable as they stimulate a sense of excitement and growth. Learning requires activity on the part of the learner
- Being aware of the usefulness of the knowledge being acquired makes the learning process more effective.

('Ecotourism: Impacts, potentials and possibilities', Wearing, S. and Neil J., 2000.)

Of the utilisation of a few selected geosites, MacFadyen (2005) says that quality interpretation should be a key component of successful geotourism. At the Weekend workshop involving people in geodiversity held at Wareham, Dorset, between 7-12 September 2004 it was stated by MacFadyen that "*The way geodiversity is presented is crucial to the way it is perceived and valued. Education and interpretation involve looking at how to raise this perception. Together they represent more than simply giving information, but rather a spectrum of activities that can be employed to communicate a message. High quality interpretation and carefully targeted information to support education will encourage the understanding and support of geodiversity by present and, more importantly, future generations. There are numerous approaches to communicating geology and geodiversity to the public, including talks, visitor centres, festivals and events, guided or self-guided trails, interpretation boards, and a variety of publications, including magazines*" (www.scottishgeology.com/outandabout/geotourism.html).

4.7.3 GEOHERITAGE INTERPRETATION

Hlad and MacFadyen (2004) give a very good account of geoheritage interpretation from the "*Earth Heritage Interpretation and Tourism*" workshop, held at Crna na Koroškem, Slovenia, in October 2003. The aims of workshop were focused on learning how to help an understanding and appreciation of the geological heritage through good interpretation, with particular emphasis on geotourism. The workshop was seen as necessary as there was a lack of appropriate training for geoconservationists and others working in the growing areas of geoheritage interpretation and geotourism in Slovenia. Interpretation is an art, and requires a systematic approach together with adequate training. The Scottish Natural Heritage already had such knowledge and had gained experience in successful interpretation, particularly regarding what interpretive principles worked and what constituted good interpretative

practice. The workshop also provided an insight into the methodology, planning, management and importance of forging partnerships, and in the provision of interpretation projects. The participants at the workshop were a very multidisciplinary structured group of:

- Nature conservation authorities
- Geologists
- University staff
- Museum curators
- Interpreters and guides
- Local community representatives.

Figures 4.17a and 17b: The geoguide explaining the formation of lava flows: 1) Munterley hill (left), and 2) In an old volcano in the Volcano Eifel Geopark (right), Germany

Hlad and MacFadyen (2004) are of the opinion that communication has always played an important role when governments were successful in implementing environmental policies. Communication can help increase knowledge, raise awareness and change attitudes and behaviour. Communication involves knowing the target group within which change is to be stimulated and designing the best means and messages to bring about that change. Interpretation is communication and is about telling a story that is a vital part of how people experience the places they visit (http://www.snh.org.uk/wwo/Interpretation/default.html). Good geo-interpretation will leave visitors feeling connected, inspired and alive with curiosity. They will better understand the landscape, site or centre and will enjoy them more and so are more likely to return. Interpretation is a way of imparting messages to visitors in a memorable way. It is described by some as 'information with an explanation'. Thus, interpretation aims to improve visitors' understanding and enjoyment through provoking their interest, relating to their everyday experience and by revealing something new.

Geoheritage interpretation is necessary because geoheritage is important in underpinning the landscapes and biodiversity that currently exists. Despite this, geoheritage is probably further away from the hearts and minds of the population than other, more easily identifiable aspects, of the natural heritage, such as the flora and fauna. Like biodiversity, geoheritage is vulnerable to

the activities of mankind that may damage it. Therefore, only those people and local communities who know their geoheritage and can both identify and relate to it, can contribute to its conservation and sustainable development. Geoheritage interpretation has a clear role to establish the real links between the bio- and geodiversity and the need to conserve them both equally. Another reason for the necessity of geo-interpretation is the opportunity geodiversity offers in tourist efforts at local or national level. Good geo-interpretation will enhance the visitors' experiences and will help boost geotourism. European geoparks have already been established across Europe and they represent examples of geotourism as an opportunity to stimulate local economies. In these areas, geoconservation, sustainable development, environmental education and sustainable tourism are being practised. (www.sgu.se/hotell/progeo/news/1_2004/sloven.htm)

Figure 4.18: The mascot of the Eifel geopark, "*Willi Basalt*", To explain volcanism to children

Dowling and Newsome (2006, 12-15) provide an example of the vital role of interpretation at an established geotourism destination, in this case, Wave Rock, Australia. Because there is no movement, sound or interaction in rocks they must be brought 'alive' to the visitor in a critical aspect of geotourism for what is important about the rocks is how they were actually formed. Therefore, trained interpreters are necessary to deliver the information and at the same time inspire the geotourist. Thus, "*as in other forms of natural area tourism, the visitor needs to be left with a sense of wonder and challenge as to where we sit as a species within the timescale of planet Earth*". The focus of interpretation should be at the geosite itself because the ultimate objective is to increase understanding and enhance the enjoyment of the place. "*By instilling interest via interpretation, appropriate visitor behaviour at the site can be achieved. The final desirable outcome should be to encourage appropriate minimal-impact behaviour, increases visitor's awareness of impacts, foster conservation of the site and promote an interest in geoconservation*". Materials assisting in interpreting geosites could include art, books, displays, slide shows and videos, interactive touch panels, models, specimens, computer animations and activities. Although these are undoubtedly extremely useful, and in many cases an essential part of presenting geotourism to the visitor, there is no substitute for a field visit. It

is therefore crucial to have on-site interpretation for face-to-face communication, but remembering that selected materials can also be used in the field to enhance the interpretive process.

In many cases, current on-site presentation is inadequate. Hose (2006: 223-238) believes that there are three problems common to all involved in geo-interpretation:

- The degree of detail required in various types of geological exposition
- The capability of the audience to absorb what is being said?
- What rules should be followed in order to communicate most effectively?

Although interpretation has been discussed in this chapter as part of visitor management, it is a vital tool in the education of visitors when explaining geology and geoheritage in simple terms to the layman (see Chapter 3, point 3.7).

4.7.4 THE ROLE OF INTERPRETATION DIRECTED AT VISITORS

Weaver (2006:185-187) believes that the overriding messages that are relevant to sustainable tourism include the deliberate and unintended, direct and indirect, environmental and social costs of Western lifestyles, the links between those lifestyles and resource exploitation, the sustainability of indigenous lifestyles and the role that individuals can play in contributing to environmental and cultural rehabilitation. He believes that the effective conveyance of these messages can have transformational consequences that make people more environmentally and socially conscientious and thereby help to achieve an enhancement orientated, comprehensive model of sustainable tourism.

Tour guides are well positioned in mediating contact between the tourist and the attraction. They can give effective interpretation but this is complicated by the multiple roles that must be played by the guides and by the multiple masters that they must serve. The tour guide is not only expected to provide appropriate interpretation, but is also expected to give group leadership, to coordinate logistics, to ensure the safety of clients, to prevent inappropriate behaviour, to deal with emergencies, to mediate interactions between clients and the host community. These, in addition to fulfilling the expectations of clients, tour operators, attraction managers and the host communities to whom they are accountable. Partially because to this, tour guides may only be able to devote a small portion of time to the development and presentation of persuasive interpretation that promotes positive behaviour in the tourist. They can and do respond to questions, engage knowledgeably in dialogue with the audience, utilising enthusiasm, bonding and personalization to increase the persuasive power of their interpretation. Static interpretation such as signage, displays, brochures, videos, webcams and audiotapes can also be used, particularly because they are more cost effective. However, these cannot bond with visitors, nor personalise interactions nor yet adjust to ever changing situational factors. Unfortunately, displays and signage are often vandalised. Many visitors lack sufficient motivation, patience and, literally, the skills to read extensive amounts of information available in brochures or on displays. Therefore, for most

attractions it is sensible to have available both effectively designed and interactive static interpretation that complements professionally trained and highly motivated local tour guides.

Because the interpretive provision at geosites is of cardinal importance, information centres must be planned carefully. According to Godfrey and Clarke (2000: vi, 14-15): "*Tourism planning at the destination level is a step-by-step-process of evaluation, action and review. Its broad purpose being to recognize gaps, identify new ideas and take action to fill those gaps. It is driven by long-term goals but with short-term actions, each contributing to the final objective, one piece at a time. It involves ongoing monitoring and allowing for revision in response to changing circumstances in the market place. Experience suggests those communities that follow a more systematic and strategic approach to tourism development and marketing are more likely to achieve long-term benefits. However, tourism is no economic panacea, and getting the most from the industry requires careful planning and management. In some areas, no matter what the capital injection, tourism may not work if it is ill-planned or mismanage*".

Ham and Weiler (2002:37-42) are of the opinion that if interpretation is strategically packaged and creatively delivered, it can contribute to sustainable wildlife tourism by:

- Satisfying customer demand
- Creating opportunities for local employment
- Influencing onsite visitor behaviour
- Promoting a conservation ethic that may extend well beyond their on-site experience.

Figure 4.19: Volcano exhibit that shows the interior of the Earth, Vulkanhaus Strohn, Vulkan Eifel Geopark, Germany

Interpretation can facilitate economic sustainability by satisfying customer demand. To what extent are learning and information seeking important motivations for tourists? Visitors want accurate, timely and relevant information during their experience. They seek information

about the places they visit not only while they are on site, but also before and after their visit. Indeed, they expect and demand it as part of the experience for which they have paid. They want to get the right information, in the right way, at the right time and to the extent that they do this, their experience is more satisfying. Successful tourism businesses concentrate on developing and delivering interpretive services. Wildlife tourism operators, for example, offer an intellectual and emotional experience, and this combination creates satisfied customers because of the connection that interpretation creates between people and the places to which they go. This is also true for guided and self-guided tours. Apart from the mere facts given by guides, the guides' commentaries must help them to relate, connect to and care about the place and wildlife that live there. High quality interpretation is a major contributor to tourist satisfaction. Interpretation can also create local employment. People with local knowledge, and with a passion for the place in which they grew up, normally make the best interpretive guides. Training and employing local people as guides and interpreters represent an important sustainable development strategy. This will both lead to satisfied customers, and to satisfied locals who then become important allies in the protection of both the natural and cultural environment that form the basis of the wildlife tourism industry.

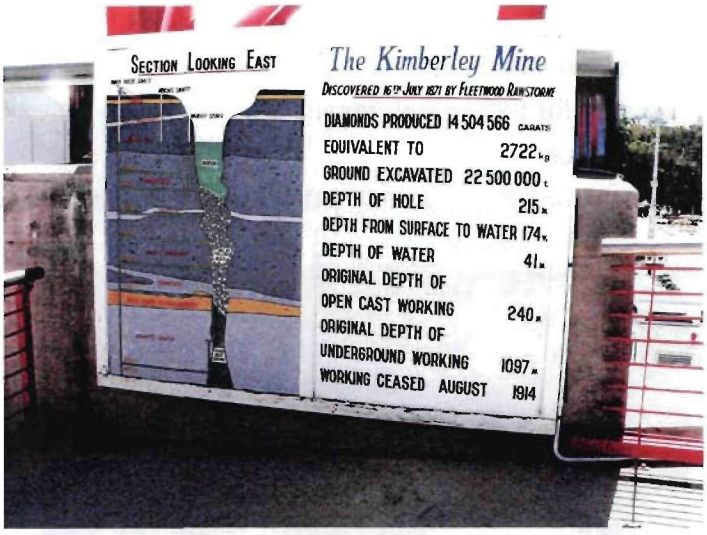


Figure 4.20: Cross section of the Kimberley Mine, Big Hole, Kimberley

Interpretation also acts as an on-site regulator of visitor behaviour and is a key strategy for managing environmental impacts. It has been employed for decades by the Canadian Parks Service. The US National Park Service implements a more sophisticated interpretive planning process aimed at informing decisions such as which audiences will be targeted with which strategic messages (themes), with the specific purpose of influencing visitor experiences and often behaviour. If how a person feels and act toward a thing needs to be influenced, then it is necessary to influence what their beliefs are regarding that thing. This is both strategic and purposeful because it is aimed at a desired outcome. Thematic interpretation is the idea of communicating beliefs in an effort to strategically influence

attitudes and, ultimately, behaviours. The intent of thematic interpretation is to plant a seed that will become the foundation of a new belief related to the desired behavioural outcome. Lastly, interpretation promotes a conservation ethic in tourists. It can play a role in long-term conservation by influencing what visitors come to believe about the area, about the resources being protected and about the strategies being used to protect them. Through the 'sleeper effect' process, a day can be spent by observing or thinking about wildlife, and through this, new beliefs can be implanted in a tourist's psyche. Reinforcement of the themes at a later stage is necessary.

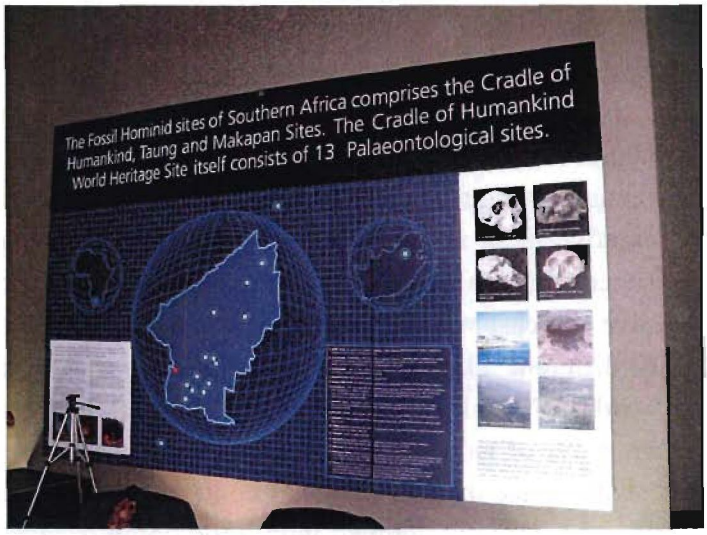


Figure 4.21: Information poster and map, at the entrance of the Tumulus Building Exhibition Centre, Cradle of Humankind (COH)

In conclusion, Ham and Weiler (2002:41-42) believe that these are the premises and promises of interpretation in wildlife tourism. They are also applicable to geotourism. If interpretation is done well, it will enhance the geotourism experience of tourists, act as a mechanism for job creation, serve as an on-site management tool and act as a strategic communication medium for long-term conservation.

There are several areas in which geo-interpretation can assist to develop more sustainable forms of tourism:

1. Visitor management can be used to direct visitors to less sensitive and less crowded areas. It can also be used to develop previously under-utilised attractions and regions.
2. By using the existing attraction base and by attracting visitors to previously ignored areas using interpretation, visitors can be persuaded to stay longer in an area. Thus, economic benefits can accrue by external spending and more employment opportunities.
3. Interpretation can highlight the importance of environmental conservation, and at the same time, make visitors aware of the environmental benefits that can be achieved

4. Interpretation has a great potential to promote sustainability when the community is allowed and encouraged to promote and support the aspects of their heritage that are important to them.
5. Attitudes and values can change when interpretation increases interest and respect for local communities.
6. Enhancing the quality of interpretation at visitor centres, attractions, on tours, along trails/drives and 'in the field' or on site, is a major opportunity area for 'nature in tourism'. As far as possible, interpretation needs to capture a visitor's imagination, intellect or emotions (albeit momentarily) and in so doing, engage their interest. Differences of age and cultural background are also obvious considerations. When pursuing excellence in interpretation, there are as many paths of possibility open to visitor managers as there are creative ideas in the world. To fail to explore these is to risk having an audience label the interpretive approach adopted as too dull, tired, serious, patronizing, overcomplicated, overwhelming, superficial, or cautious. Innovative and creative ideas resulting in exciting interpretation outcomes are often achieved more successfully if more original and novel development processes are applied, the creative net cast widely. Building wider creative alliances by involving other people with different 'skill sets' (for example, those who are known for their innovative and 'wildcard' thinking capacities as well as an essential sense of humour and fun) can often prove of value - particularly if these people are properly rewarded for the business significance of their personal contribution to the results. A capacity for simple but effective delivery coupled with good commonsense and empathy also helps.

To summarise its benefits, interpretation is an effective way of adding value to the experience, of employing more locals, of creating a cultural connection for visitors, and of building understanding and differentiating an operator's product in the market.

4.8 CONCLUSION

The development of geotourism, site and visitor management and how the various approaches and tools for the management of geotourism can be applied were examined. A successful and competitive geotourism destination was discussed. Destination competitiveness and performance are linked by several steps. Steps to destination success were shown as consisting of comparative and competitive advantage, tourism markets, competition, goals and a target market strategy.

In developing the conservation of geoheritage for a sustainable and integrated environment case studies from Finland, the US and Canada were examined. The "*Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance*" of 2002 was discussed. It stresses that the planning processes, conservation policy, management strategies and the conservation plans must be monitored and reviewed continuously.

Geoparks have been established in Europe, China, and now also in other parts of the world. They are designated areas with a rich and diversified geoheritage. The geoheritage of those areas should be conserved, enhanced and managed for future generations and for its use by visitors. People in general must also be educated about the value of geoheritage. At present, there are 58 geoparks in the world; 33 in Europe, 21 in China, and one each in Brazil, Iran, Malaysia and Australia. Aspects in the creation of a geopark such as the economic development of a community, clear management structures, a concept for sustainable tourist development based on earth science heritage and conservation of geosites within its limits were examined in some detail.

The development of the European Geopark Network under the auspices of UNESCO in 2000 with aims of conserving and enhancing the conservation value of geopark sites, creating employment and the promotion of regional sustainable development through geotourism, the provision of educational facilities and the encouragement of public enjoyment of geological heritage was examined. Further, the Global Network of Geoparks aims of the establishment of World Geoparks by UNESCO to promote places that integrate significant examples of the Earth's geoheritage in a strategy for regional economic development were then discussed. The several criteria to be met for the establishment of a geopark wishing to join the Global Geoparks Network were examined and interrogated.

Examples were given how geotourism products are being utilised in mining museums, historical mining towns and theme parks. There are many mining heritage places that were conserved and are now being used as tourist attractions. Examples in Sweden, Wales (Blaenafon), Germany, Italy, Austria, Australia and Canada were offered. It was noted that the mining history of Røros (Norway), the historic centre of the town of Diamantina (Brazil) and the mines of Rammelsberg and the historic town of Goslar (Germany) were declared World Heritage Sites. The towns of Pilgrim's Rest, Barberton, Kimberley, Johannesburg (Gold Reef City) and O'Okiep were offered as examples of the mining heritage of South Africa. Another example was the whole town of Pilgrim's Rest that has been declared a museum.

The role of The South African Gold Panning Championships, held annually at Pilgrim's Rest, was highlighted as it is the only event of its kind in the country - so far. Exhibitions to explain geology to the public and to publicise its value were also evaluated.

The "*3rd International UNESCO-Conference on Geoparks*" was an important event that was held in Osnabrück, Germany, in 2008. The main topic was communication and the goal was to create appropriate methods to raise the awareness of the geological heritage of the planet - far beyond a geopark's borders. Before the conference posters, education pamphlets and booklets from 58 World Geoparks were displayed at the 1st International Geoparks Fair.

The "*Inaugural Global Geotourism Conference 2008*" was held in, Fremantle, Western Australia, during August 2008. This hallmark event was seen as setting a benchmark for the

tourism industry in relation to the development, management, marketing and promotion of landscapes. All aspects of geotourism were highlighted at this conference and geotourism's status as a conservation tool, educational process and nature-based tourism activity. Case studies which highlighted the issues involved in the management and care of such attractions, and cover topics such as sustainability, impacts and environmental issues were included. Exhibitions to promote geoheritage were placed as important mechanisms to introduce and explain geology to the public and visitors.

Geoheritage interpretation is seen as necessary because geoheritage underpins the landscapes and geodiversity that exists. The most critical aspect is interpretation for visitors and tourists. Some benefits are that interpretation is an effective way of adding value to the experience, of employing more locals and of creating a cultural connection for visitors. Interpretation has the ability to direct people away from sensitive areas and yet to educate them about the need to behave respectfully. It also educates and entertains visitors in a manner that should cause them to reflect about environmental values. The role of interpretation is to make people more aware of what they visit, to provide knowledge that increases their understanding and to promote an interest that leads to greater understanding enjoyment and responsibility.

CHAPTER 5
DEVELOPING A STRATEGIC MANAGEMENT PLAN FOR GEOTOURISM

5.1 INTRODUCTION

In Chapter 5, the theory of strategic management will be discussed. Publications of well-known authors in the field of strategic management, such as those of Thompson and Strickland (1995), Hough, Thompson, Strickland and Gamble (2008), Saayman (2002), Coulter (2005), De Bruyn and Klopper (2005) and Macmillan and Tampoe (2000), were consulted to get an overview of the strategic management process. The consensus is that because developing a strategic management plan is a process that involves selecting a desirable future from a range of plausible alternatives, the first step would be to examine the role of strategic planning itself. Strategies and actions can then be implemented to achieve the desired outcome.

Schutte's (2007b) conceptual framework for a strategic management plan will be amended so that it can be used as a basis for the sustainable development of geotourism. The seven inter-related steps that will be discussed are:

1. Strategic planning.
2. The tourism management planning process.
3. Vision and mission.
4. Situation and resource analysis.
5. Strategy formulation.
6. Implementation, and
7. Evaluation and monitoring.

Strategic planning must be the starting point. The tourism management planning process is already sufficiently challenging because of the involvement of the many different stakeholders. Strategic planning is crucial if the plan formed is to be successfully adopted and implemented.

The strategic management plan's starting point for geotourism will be the vision and mission. In developing the vision and mission, the plan should be proactive and should give guidance in terms of where it is needed to be, and also who is developing the plan, how the planner is related to the plan and where the planner intends to take the project. A well-developed mission statement will help channel organisational efforts along the course that has been charted. Effective missions should be clear, challenging and inspiring for they prepare the project for the future. It also will serve as a beacon for long-term direction.

How a situation and resource analysis is undertaken through environmental scanning, using two types of scanning, internal and external will be studied.

A situation and resource analysis must be completed because organisations and destinations are influenced by forces, both outside and inside the organisation. The most commonly used analysis is the "*SWOT*" analysis, where "S" stands for the organisations Strengths, "W" its Weaknesses, "O" the Opportunities available to it, and "T" stands for any Threats identified. The SWOT analysis forms a useful instrument for helping tourism managers identify key internal and external variables and to pinpoint potential business opportunities. Environmental, social and economic analysis of geotourism will be described.

Environmental, economic and social analysis of tourism is important. These considerations must be well understood in the successful planning, development and management of tourism. The primary reason for developing tourism in most places is for its economic benefits. The three Heritage Legislation Acts (No's 11, 25, 49 of 1999) with regard to geology and geoconservation in South Africa will be discussed.

The strategy formulation process shows the three inter-locking aspects:

1. Strategic intent
2. Strategic assessment, and
3. Strategic choice.

These aspects must be in equilibrium.

There are four levels of strategy making:

1. Corporate
2. Business
3. Functional area, and
4. Operational.

In the implementation of strategic management, it will be discussed how the action phase of the strategic strategy can be implemented.

The strategic control process has three basic elements:

1. Company objectives
2. Performance evaluation, and
3. Feedback (or corrective action).

In the implementation of a geotourism strategy, it will be discussed how the plan's policy and recommendations should be carried out. In the implementation of a strategy, management and marketing geotourism will follow the plan generated. The geosites must be managed according to sound business principles. Strategic marketing and promotion and an awareness campaign to emphasise the importance of geology will also follow from the original planning processes. Finally, evaluating and monitoring geotourism progress will be discussed. Practical examples will be given for the above-mentioned cases to illustrate what already has been done internationally overseas and how the lessons learned from these projects could be applied in South Africa.

When considering the evaluating and monitoring of tourism plans, it will be described how performance should be evaluated in achieving sustainable practice in tourism planning. It will then be demonstrated how to address future challenges and issues associated, and how these challenges can contribute to the achievement of sustainable tourism.

5.2 STRATEGIC PLANNING

Eagles, McCool, Haynes and Christopher (2002:13) believe that planning is a process that involves selecting a desirable future out of a range of plausible alternatives, and thereafter, implementing strategies and actions that will achieve the desired outcome. Bryson (2004: ix), and Bryson and Alston (2005:3) state that "*Strategic planning is a set of concepts, procedures, and tools designed to assist leaders and managers with these tasks. Indeed, strategic planning may be defined as a disciplined effort to produce fundamental decisions and actions that shape and guide what an organization (or other entity) is, what it does, and why it does it*". They state that:

- Strategic planning is a way of thinking, acting and learning
- It usually takes a comprehensive view by focusing on the 'big picture', but also leads to specific, targeted actions
- It is often visionary and usually proactive rather than reactive It is flexible and practical
- It is a guide for decision-making and resource allocation.

The benefits of strategic planning are:

- Increased effectiveness
- Increased efficiency
- Improved understanding and better learning
- Better decision making
- Enhanced organisational capabilities
- Improved communications and public relationships.

Dwyer and Edwards (2005:8) are of the opinion that there are four key stages in the strategic planning process:

1. **Identification of sustainable tourism and underlying values**:
   - Issues relating to respect for the socio-cultural, political, economic, and environmental contexts of the local, regional, national and international levels
   - Major impacts of tourism development.
2. **Formulating strategies for sustainable tourism planning**:
   - The need for communities to be made sufficiently aware of and to understand the tourism industry and its impacts
   - Various processes to integrate and engage in participatory planning, consensus building, and conflict resolution among all stakeholders.

3. **Implementing tourism plans**:
    - The critical role community can play in the achievement of sustainable economic development through tourism
    - The importance of leadership and skills training programs Role of different stakeholders in strategy implementation.
4. **Evaluating and monitoring tourism plans**:
    - Evaluate performance in achieving sustainable practice in tourism planning
    - Address future challenges/issues associated with how tourism planning can contribute to the achievement of sustainable tourism.

Edgell (2006:96-97) states that practical guidelines for sustainable tourism are important. If sustainable geotourism is carefully planned, it can fulfil economic, environmental and social goals while maintaining cultural integrity and an ecological balance. Throughout all stages of tourism development and operation, a careful assessment, monitoring and mediation program should be in place to allow the local people to respond to changes, and to make adjustments where necessary. An experienced outside expert is advisable. Boo (1990, as cited by Edgell, 2006:97-98) give some guidelines that work together in planning a nature destination:

- The success of nature tourism depends on the conservation of nature
- Nature tourism sites need revenue for protection and maintenance
- Tourists are a valuable audience for environmental education
- Nature tourism will contribute to rural development when local residents are brought into the planning process
- Opportunities are emerging for new relationships conservationists and tour operators.

The potential opportunities offered by sustainable tourism should be realised because it is important that local communities and businesses have goals and objectives to chart the way. A strategy should be developed for an integrated approach to geotourism planning and infrastructure. Therefore, the overall objective should be to have an environmentally and culturally sustainable geotourism development program that will allow the tourism industry to become competitive, and local economies to be economically viable.

In the document "N*ational and regional planning. Methodologies and case studies*" (1994:56-59), it is stated that an essential part of the planning process is to specify how the plan's policy and recommendations should be carried out. The techniques of implementation should be considered throughout the formulation of the plan because this will give greater assurance that recommendations are implemental. The six major elements are the following:

- Plan adoption and allocation of responsibilities
- Staging and programming development
- Applying zoning and other regulations
- Applying development standards
- Implementing other standards; and
- Monitoring and management.

Bragg and Cuming (2002:9) use the planning web as a linked web of goals, strategies, actions and performance targets, to achieve a specific vision for the future. Figure 5.1 illustrates how the planning web can be used in the context of the sustainability.

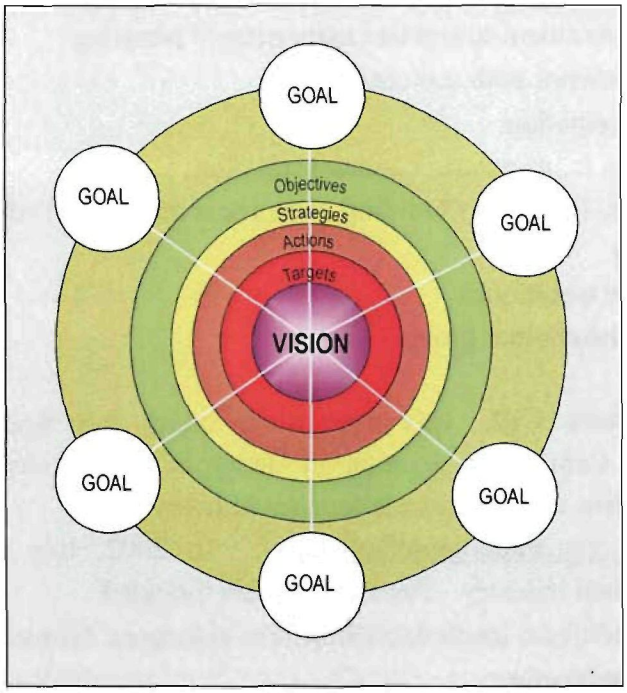


Figure 5.1: The planning web (Bragg and Cuming, 2002:9)

It corresponds to a movement towards the centre of the web. The goals of the planning web are the key aims of the sustainability strategy and can be linked outwardly to broader regional, national and global sustainability goals. Each goal has a number of issues to address through strategies with a range of actions or tasks to meet the goal. Performance targets and timelines are set to help meet the goals and to measure success in achieving the organisation's vision. Woven together these strands establish the integrated planning web. However, the web is only as strong as its weakest strand. It must be remembered that all goals are important to achieve. Efforts must be made to seek successfully to put into place the actions proposed for each goal, as well as to review them. Over time new tasks and targets will be set that reflect the nature of change in the organisation's awareness and views, new ideas and ways of thinking, and the long-term nature of the sustainability strategy. The planning web provides a framework for:

- Integration of work-to–date
- Gap analysis
- Input from existing forums
- Focus for visioning.

5.2.1 STAKEHOLDER INVOLVEMENT AND NETWORKING

Gebhard, Meyer and Roth (2007b:9, 18-27) note that the main challenges of tourism

management planning are the development of adaptive management strategies, and getting the stakeholders prepared and involved in a participatory planning process. They describe some of the most important issues as:

- Participation of local population in the planning processes
- Stakeholder involvement in tourism management planning
- Deciding how to work with stakeholders
- Methods of participation:
  - Precondition 1: information and consultation
  - Precondition 2: capacity building, awareness raising and education
  - Notification
  - Participation techniques
  - The multi-stakeholder group.

The Sustainable Tourism CRC was established under the Australian Government's Cooperative Research Centres Programme to underpin the development of a dynamic, internationally competitive and sustainable tourism industry (http://www.crctourism.com.au/about/default.aspx). In 2002, this body made a list of stakeholders in the tourism industry. The stakeholders included:

- Resource and traditional landholders Resource managers, National Park managers
- Providers of infrastructure
- Construction, design, power, gas, water, waste treatment
- Planners and development control
- Local government authorities
- Deliverers of product
- Enterprise operators – hotels, airlines, airports, hire cares, attractions, tour operators, travel agents, farm stays, convention centres, restaurants, museums, sporting events
- Destination developers and marketers
- Tourism commissions; local government
- Employees
- Managers, hospitality, planning, communication, ICT, finance, construction
- Tourists; both domestic and international – for example, package holidays, ecotourists, business travellers, backpackers, visiting friends and relatives, events, conferences, and cultural tourists.

According to Clarke (2005:91-93), an organisation's network of suppliers, intermediaries, employees, customers, and investors partner in joint initiatives, and by creating a network with which to compete, is a useful concept for tourism *per se*. In rural tourism, for example, building networks may help to:

- Tackle the inherent competitiveness between micro-enterprises, and foster greater cooperation, and draw together private and public interests
- Increase visitor spend while minimising economic leakage and maximising the multiplier effect in the economy

- Disperse visitors spatially to aid new attractions or to manage peak demand periods when capacity is stretched
- Increase visitor length of stay by signalling additional activities or attractions;
- Strengthen rural identity as achieved by the tourist and by the local businesses and residents who 'buy into' the network concept
- Strengthen relationships with travel intermediaries for product distribution and encourage (if desired) the development of packages by specialist tour operators and other external packagers of leisure products
- Nurture entrepreneurial talent and managerial expertise in the area through support networks and training partners
- Open up opportunities for funding bids as many government and quasi-governmental bodies favour partnerships and integration.

The individual component providers, goods and service suppliers from other local economic sectors, intermediaries, key customer segments, trade and professional associations from tourism and rural sectors, training institutions in the areas and local government bodies should all be included within the rural tourism network. Attention should be paid to the linkages, the density and quality of the connections, and it has been found that multilevel linkages may prove to be more enduring. In a very informative poster presentation at the "*32nd International Geological Conference*" in Florence, Italy, Vollmer and Megerle (2004) show how geotourism can be successfully promoted by involving different stakeholders in a multilateral communication and participation strategy. A network is cooperation, featuring the following characteristics:

- Persons from different disciplines are linked together in the network
- Each partner keeps its independence
- The basis for information exchange is reciprocal
- A winning-situation for each partner is created (financial and/or intellectual profit).

Besides the advantages of the cooperation form itself, networks have further abilities in that they are able:

- To bring together representatives with different experiences and know-how, and create "*creative surroundings*"
- To assure an efficient participation of NGOs and interested non-organized persons. This increases the acceptance of projects, products and initiatives
- To imply different advantages for each individual partner, like increasing profit through cost sharing
- To facilitate the development, the acceptance and the application of quality standards.

Pforr and Megerle (2006:125-126, 134-136) give a practical example of the Network History of the Earth developing high quality sustainable tourism based on the unique georesources of southwest Germany. Other parties and the network then promoted a "*One billion year journey through the history of the Earth*" as a sustainable geotourism product package. The network initiative mainly served as a tool to develop a common language and shared aims and

objectives, to create trust, and to explore its strength, available resources, competencies and capacities as well as an anticipated win-win scenario for each network partner. The network process model is shown in Figure 5.2 below.

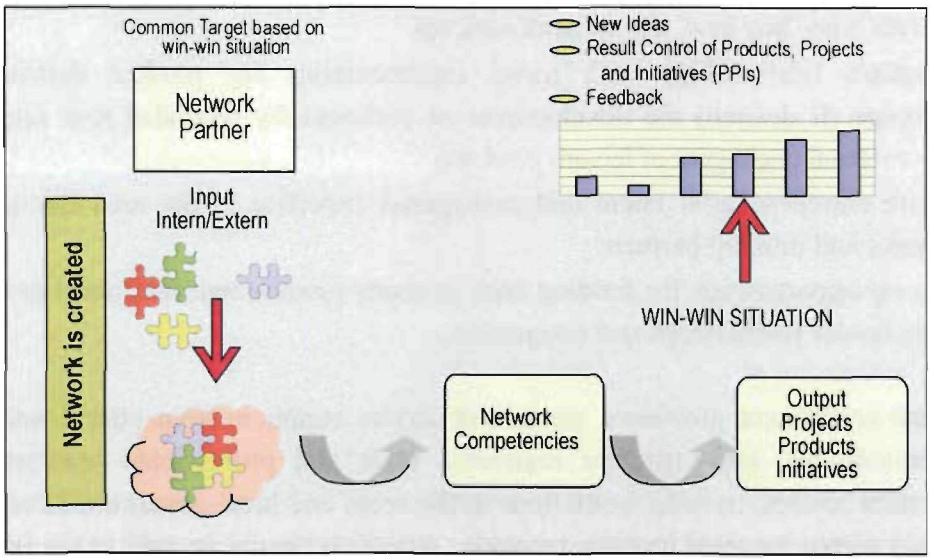


Figure 5.2: The network process model (Borkenhagen, Jäkel, Kummer, Megerle and Vollmer: 2004, as cited by Vollmer and Megerle, 2004)

The Network History of the Earth in South Western Germany was founded in 1997 with the main aim of the establishment being the operation of a sustainable system promoting and managing geotourist products, projects and initiatives (PPIs). The output of the network process varied over time. In the beginning, the products were focused on the unique selling propositions and the development of package tours with a network brochure. Single stations were then linked together and these linkages resulted in tourist being able to take a trip through the history of the Earth. Additionally, guidelines for sustainability and for evaluation and controlling systems were elaborated within the network and have been established. A win-win-situation has been created where every partner in the network, wins. Bringing know-how together is shown in Figure 5.3.

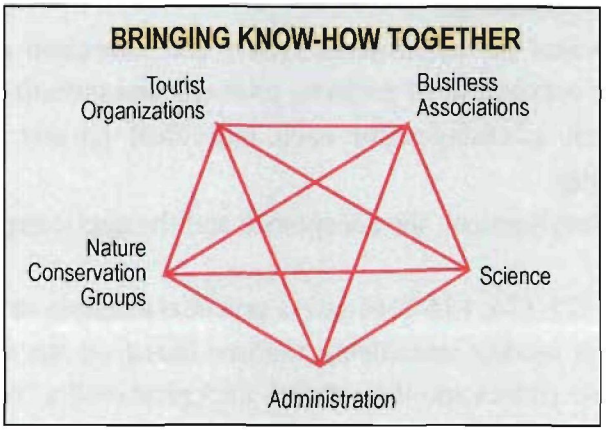


Figure 5.3: Bringing know-how together (Vollmer and Megerle, 2004)

The know-how of transfer took place from the Network History of the Earth to the Geopark Schwäbian Geopark. Pforr and Megerle (2006:131) explain the employment of various strategic approaches in the process:

- **A bottom-up strategy**. The initiation, moderation and promotion of the Round Table Schwäbian Alb Geopark brought different stakeholders together. Strong support for the geopark idea was achieved through the participation of a broad spectrum of stakeholders
- **A starter project strategy**. The joint elaboration and realisation of starter projects was important for the creation of a common language between the different stakeholders like academia, tourism, government authorities, private enterprises and nature conservation bodies. The common language was one of the most important factors in facilitating communication, exchanging know-how and achieving efficient ways of working together on joint projects
- **A promoter strategy**. The network moderator acted s a network promoter. One of his most important tasks was the promotion of various win-win scenarios to the different partners, and by doing this enthusiasm of the stakeholders as stimulated.

Pforr *et al.* (2006:134-136) describes an approach to develop high-quality geotourism and its promotion as the "*One billion year journey through the history of the Earth*". One of its most important elements is a central network management to perform successfully the various management tasks of documentation, information dissemination, coordination, moderation and mediation. Crucially important is the process of facilitation for a common language among partners. Another task for network management is as a "steam generator" to draft proposals for common strategies and for identifying and promoting both real and potential '*win-win*' scenarios. A trustful environment facilitates information exchange' and the transfer of expertise and the network creates a basis for consensus decision-making. Through these actions, the network management is able to foster a creative atmosphere, identify hidden potentials of various network partners and ensure the sustainability of its products and processes. Personal ties between network partners and face-to-face meetings are an essential and beneficial activity. The development and implementation of an education program emphasize the landscape as a tool to develop competencies. An excellent learning environment was created for students to allow them to translate theory into practice by means of research projects. Lastly, to achieve sustainable outcomes, a best-practice compulsory framework for all its partners was instituted. This is a good example where a successful partnership between various stakeholders was achieved by the process of networking.

Megerle (2004b) states that geosite conservation and geotourism have a long tradition in Germany: "*In the National Geoparks geotourism is seen as part of a holistic management approach to the broad field of geological and landscape history, including its interconnection with flora and fauna, the cultivated landscape, present land use, environmental issues and actual economy. The finding of unique selling propositions is one of the basics for an effective regional marketing process and the development of a regional identity. Networking*

with stakeholders from authorities, industry, nature conservation, universities and other institutions assure sustainability and quality".

In summary, common products, high-quality standards and sustainability guidelines show that the Network is really performing very effectively. It can be seen as a successful model to develop and promote high quality, sustainable geotourism. An adequate knowledge base and a sufficient exchange of information and expertise between the relevant stakeholders are necessary to develop geotourism as a mechanism for sustainable regional development and geoconservation. Expertise and knowledge of the relevant actors from the public and private sector, community groups and academia could achieve sustainable development when they are willing to cooperate. Therefore, the establishment of communication networks and adequate exchange of this information are important to implement geotourism successfully. Research is also important in the implementation of regional sustainable development.

5.3 OVERVIEW OF THE STRATEGIC MANAGEMENT PLAN

Coulter (2005:2-5) defines strategic management as "*A process of analyzing the current situation; developing appropriate strategies; putting those strategies into action, and evaluating, modifying, or changing those strategies as needed*". Strategic management is important because:

- Everyone in an organisation plays a role in managing strategically
- Understanding how to be a more effective and efficient strategic decision maker, so that a job can be done well and have work performance valued and rewarded accordingly is important
- It leads to an understanding of strategic management such that whether or not an organisation's employees manage strategically does seem to make a difference as to how well the organisation performs
- It helps the organisation to cope with changing situations in internal and external environments
- It aids when analysing the situation and thereafter developing and implementing appropriate strategies
- An organisation is composed of diverse divisions, functions, and work activities that need to be coordinated and focussed on achieving the organisation's goals.

De Bruyn en Klopper (2005:135-163) give a good description of strategic management for a tourism organisation. It is defined a "... *the process of examining both the present and the future environments. Formulating the organisation's objectives, and making implementation and control decisions focussed on achieving these objectives in the present and future environments*". Strategic management is important because the basis of the very concept is that strategic planning is the managerial process of developing and maintaining an optimal fit between the deployment of an organisation's resources and the opportunities in its changing environment. Strategic planning is much more than a reactive series of incremental adjustments to changing threats and opportunities in the environment. It helps managers to

anticipate changes by establishing objectives and formulating courses of action through which to organise their management efforts. The concept of strategic planning has also becomes exceptionally important in management circles today because of the increasing complexities of both external and internal environments.

Strategic management consists of two phases: strategy formulation and strategy implementation:

1. Strategy formulation involves decision making with regard to:
   - Defining the organisation's philosophy, vision and mission
   - Establishing long-term and short-term objectives to achieve the organisation's mission
   - Selecting the strategy to be used in achieving the organisation's objectives.
2. Strategy implementation involves the alignment of the organisational structure, systems and processes on the decided strategy. It involves decisions regarding:
   - Matching strategy to organisational structure and providing organisational leadership that is pertinent to the strategy
   - Developing budgets, functional strategies and motivational systems for the successful achievement of organisational objectives
   - Monitoring the effectiveness of the strategy in achieving the organisation's objectives.

The strategy formulation prepares a framework of how the organisation's strategy will be implemented, whereas strategy implementation deals with the structural systems and procedural adjustments that are required to implement the planned strategy. Lastly, the management process must be implemented and monitored. Macmillan and Tampoe (2000:7-11, 31-41, 61-69, 163-169 and 185-196) believe that there are four elements of strategic management:

1. Context
2. The strategic formulation process
3. Strategic content, and
4. The strategic implementation process.

The strategic management process of Macmillan and Tampoe (2000:1-11) is shown in Figures 5.4-5.7.

The context (Figure 5.4) forms the background to the model because strategic management can only exist in a particular context, which will be unique for each enterprise, and that has numerous characteristics both for the enterprise itself and of its external environment. The context determines issues that strategic management must address, such as the agenda and scope of strategic management for an enterprise.

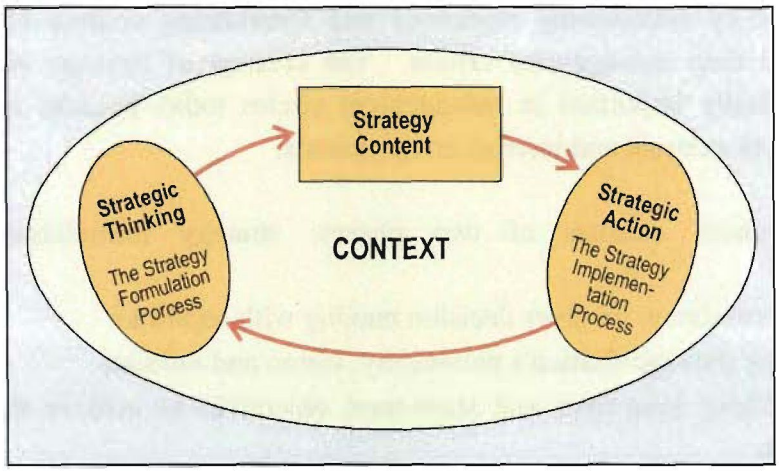


Figure 5.4: The four elements of strategic management (MacMillan and Tampoe, 2005:8)

The aim of the strategy formulation process is to ensure that strategies are conceived that will ensure the future of the enterprise. They should be designed within the unique context of a particular enterprise at a particular time. The strategy formulation process shows the three inter-locking aspects: strategic intent, strategic choice and strategic assessment that must be balanced, as in Figure 5.3. Strategic intent is the driver of the process because all meaningful action must originate in the purpose of the enterprise. Strategic assessment is the overall assessment of the context at a specific time and the effects of possible future actions. Strategic choice is the decision made of what actions must be taken and how to do this for the future direction of the enterprise. The strategy formulation process is shown in Figure 5.5.

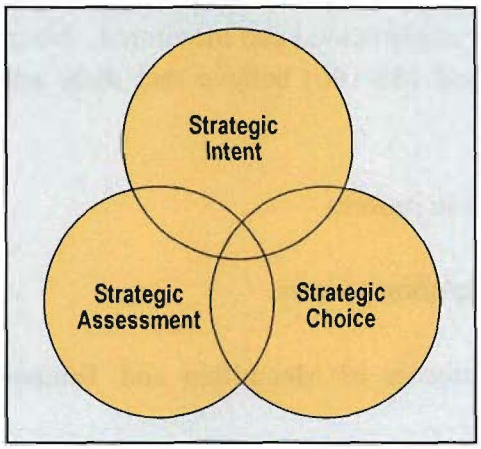


Figure 5.5: The strategy formulation process (MacMillan and Tampoe, 2005:8)

A strategy must be implemented effectively and within an appropriate time. Five key activities are necessary to do achieve this transformation:

1. Change program and project management.
2. Change leadership.
3. Culture change.
4. Structure change, and

5. Process change.

The model below shows how issues 1) and 2) affect change categories. Issues 3), 4) and 5) illustrates how leadership and management should guide the change of culture, process and structure to acquire the new transformed enterprise. The result is how the five activities come together to create a transformed organisation with new organisational capability to match the need of its strategic intent. The overall strategy implementation process is shown in Figure 5.6.

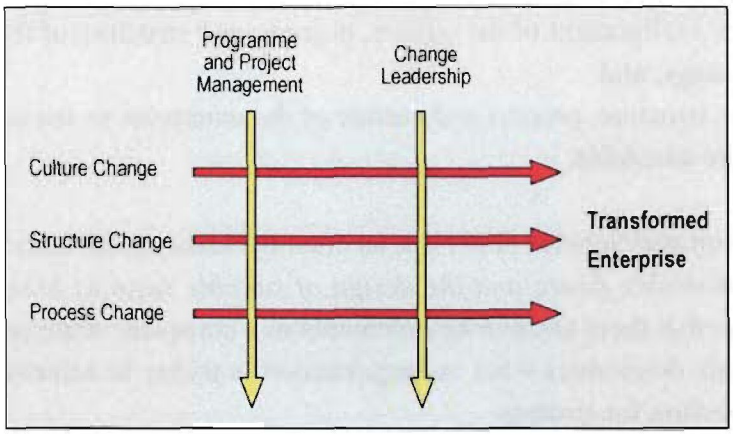


Figure 5.6: The strategy implementation process (MacMillan and Tampoe, 2000:10)

The complete model can now be diagrammed as shown in Figure 5.7.

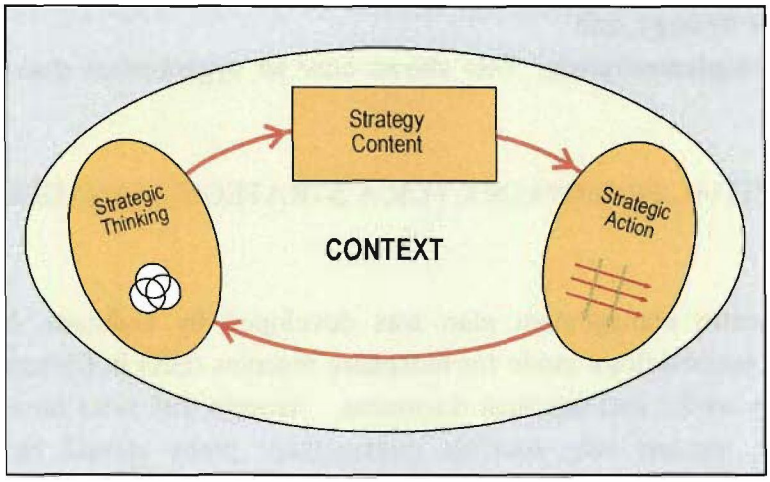


Figure 5.7: The complete model of strategic management (MacMillan and Tampoe, 2000:11)

Macmillan and Tampoe (2000:273) believe that the strategic management process may be summarised as seven distinct steps:

1. Understand the issues by studying the specific context in which the business operates and which give rise to the opportunities for exploitation using the capabilities of the

organisation.

2. Evaluate all of the issues by relating them to the strategic intent of the organisation.
3. Undertake a strategic assessment of the current status and the opportunities available.
4. Derive a set of strategic options that can be meaningfully and profitably exploited.
5. Make a strategic choice of a preferred option that is feasible for implementation within the constraints and of the context and has commitment to those most involved in making it happen.
6. Put in place an appropriate strategy implementation process to create the new organisational capability to achieve the chosen strategy. This invariably requires the alignment or realignment of the culture, process, and structure of the organisation to the new strategy, and
7. Examine the structure, process and culture of the enterprise to see what can be done to make it more adaptable.

According to Johnson and Scholes (1997:13, as cited by Tribe, 2005:120) a "*Strategy ... [is] the planning of a desirable future and the design of suitable ways to bring it about*". Tribe (2005: 120) believes that there are four key elements in a corporate strategy. These are:

1. **Mission**: This determines what an organisation is trying to achieve and provides the aim and direction for strategy.
2. **Strategic analysis**: This informs an organisation regarding the strengths and weaknesses of its internal resources, and the opportunities and threats evident in its external environment. A SWOT analysis provides a summary of these and an example is shown in Table 5.2.
3. **Strategic choice**: This is where an organisation generates, evaluates and chooses an appropriate strategy, and
4. **Strategic implementation**: This shows how an organisation puts its strategy into action.

5.3.1 A CONCEPTUAL FRAMEWORK FOR A STRATEGIC MANAGEMENT PLAN

A sustainable tourism management plan was developed by Gebhard, Meyer and Roth (2007b:1-64) as a methodology guide for biosphere reserves (BR) in Eastern Europe. It was found to be a very useful and practical document. Aspects that were incorporated into the document include reasons why tourism management plans should be developed, the procedure for plan development, guidance on stakeholder involvement, review and monitoring, and a detailed template for a geotourism management plan in protected areas Gebhard *et al.* show that eight steps are necessary. The guide could appropriately be used as a helpful tool in developing a geotourism management plan for South Africa as well as the subsequent implementation of the plan in a protected area.

A conceptual framework for a strategic management plan that could be used as a basis for the sustainable development of geotourism is shown in Figure 5.8.

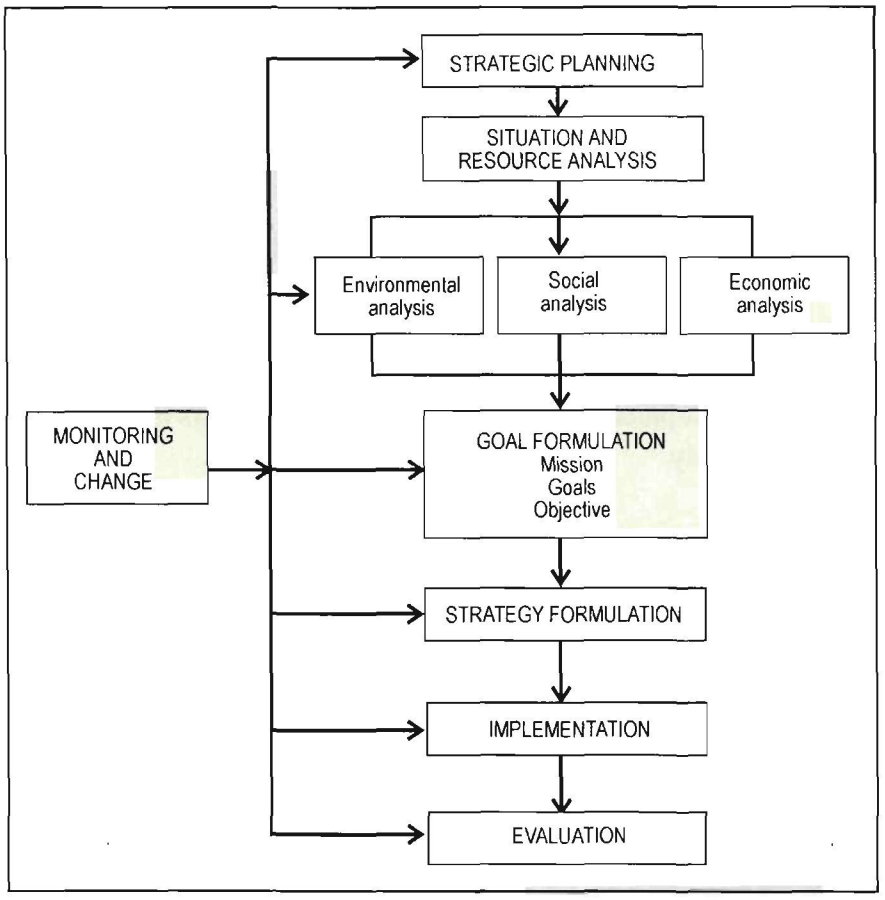


Figure 5.8: A conceptual framework for a strategic management plan (Adapted from Schutte 2007b).

5.4 VISION AND MISSION

De Bruyn and Klopper (2005:139-142) state that the first step in developing a plan is to define the organisation's vision and mission. A vision is a proactive dream and gives guidance in terms of where an organisation wants to be. A strategic vision provides the framework for the mission statement, goals, objectives and strategies of an organisation, and of future action to be taken. A mission should define an organisation's purpose, that is, its line of business, products, services and markets to be served. It must indicate what an organisation is supposed to do. A clearly written mission will give a sense of direction so that decision making for all levels of management can be established. This will assist a tourism organisation to develop objectives and strategies. A final point is that an organisation's mission must be defined at its inception and that it must be re-examined regularly.

Thompson and Strickland (1990:5, 54) state that a mission statement broadly outlines the [tourism] organisation's future course and serves to communicate "*who we are, what we do and where we headed*". A well-conceived mission statement helps channel organisational efforts along the course that management has charted, and contributes toward a strong sense of organisational identity. Effective missions are clear, challenging and inspiring; they

prepare a firm for the future and they make sense in the market place. They also serve as beacons for long term direction.

Schutte (1999:44) believes that a regional tourism organisation must have a clear mission statement regarding its philosophy and purpose. The statement should be feasible, motivational and distinctive. It can provide everyone in the organisation, and those being effected and influenced by the organisation's activities, with a shared sense of purpose, direction, significance, and achievement, and will hopefully serve to motivate them. The purpose of the mission statement is to define what the organisation is trying to accomplish with regard to tourism development in the region, with the emphasis on what should be aimed for as a long-term opportunity.

Gebhard *et al.* (2007b:30) summarise visioning as a democratic and creative process allowing the development of a spanning vision emanating from different future tourism scenarios and comprising various options. With visioning, many different future tourism scenarios could be developed and issues, problems, different points of view and competing demands brought to the forefront. The collected scenarios will then serve as a basis for generating the end vision. The vision will be based on many people's opinions, ideas, and their diverse viewpoints and can, therefore, be considered a democratically derived consensus.

With tourism management, planning for sustainable tourism development visioning can serve as a means to determine a region's specific expectations and goals.

Gebhard *et al.* (2007b:33-34) believe that once a common vision is created, the next step is to break down this vision into different goals which, when attained, will make the vision a reality. To achieve the required goals, each of them must be broken down into objectives and each of these represents a detailed task, that thereafter needs to be accomplished in a given period. Finally, the proposed objectives can be grouped into programs and main activities. The agreed objectives will then be integrated into the work plan of the tourism management plan as overall tasks. At this stage of planning, it is important that the proposed programs and activities are realistic, not idealistic. It is of vital importance that priorities, the timescale and responsibilities for each of the objectives should be clearly defined.

The "*South Australian Tourism Plan 2003-2008*" was drawn up with sustainability as the main theme. It is challenging because of the involvement of many different stakeholders. The South Australian Tourism Plan of 2003-2008 (p. 4-6) is an example how to inspire a partnership for sustainable tourism by joint tourism industry and government plans that provide a shared vision, clear direction and a sound platform for sustainable tourism growth.

- To achieve the desired sustainable tourism, the *Tourism Plan* focuses on four key goals:
    1. Developing authentic destinations and products.
    2. Being highly productive in marketing.
    3. Achieving strategic alignment of tourism policy, investment and development, and

4. Developing a strong, professional and profitable industry.

The goals are pursued through the development of dynamic implementation partnerships with key stakeholders. Sustainable tourism development and growth are at the heart of the tourism strategy. To be sustainable as a specialty tourism destination, future tourism development in South Australia are 'derived' from their authentic qualities, rather than 'contrived' or 'imposed'. The South Australian tourism industry and the State Government work in partnership to ensure that they are world leaders in economically-, socially- and environmentally-sustainable tourism.

The South Australia tourism plan framework is shown below in Figure 5.9.

Figure 5.9: Maturing tourism – South Australia tourism plan framework (http://server-au.imrworldwide.com/cgi-bin/b?cg=documentdownloads&ci=sa-corporate&tu=http://www.tourism.sa.gov.au/tourism/plan/TourismPlan2003_2008.pdf:4)

This is a good example of how a vision can be used in partnerships to achieve sustainability in destination development, strategic practice, marketing and profitable business. This plan can be applied in South Africa, with regard to the creation and development of geotourism.

5.5 SITUATION AND RESOURCE ANALYSIS

De Bruyn and Klopper (2005:143-151) believe that organisations are influenced by forces outside their industry that may affect not only particular organisations within the industry, but also the industry as a whole. Therefore, environmental scanning is a method that can be used to study and forecast external forces that are not under the direct control of the organisation. It is important to study and interpret what is happening in an organisation's current environment in order to forecast developments in the future. There are two types of environmental scanning: internal and external. The internal environment is likely to be more controllable. The external forces are those that emanate from the external environment, and the organisation needs to know the business and market environment in which it operates. Therefore, an accurate and thorough assessment of both internal and external environments is

critically important in the strategic management process. Organisations generally classify external environmental scanning into four areas: economic, technological, political (including regulatory) and social. The focus of scanning in these areas is on those trends that have relevance for the whole organisation.

To assess the internal environment, an analysis of an organisation's existing and accessible resources must be completed in order to determine its performance capabilities. A tourism organisation will be able to assess its internal environment by answering the following questions:

- **Physical resources**: What physical resources are available in terms of tourist attracting attributes? In other words, what can tourists be offered with regard to attractions, infrastructures and superstructures?
- **Financial resources**: Are the necessary financial resources available to develop and manage the tourism potential?
- **Human resources**: What employee numbers, levels, qualifications, organisation and training are required to provide for the effective management of tourism and the satisfaction of tourist needs?
- **Operational and administrative structure**: What types of operational and administrative structure are required to carry out the functions of administration marketing, finance, human resources and research/development? Does the organisation have them?

An organisation's external environment consists of all the conditions and forces that affect its strategic options, but that are beyond the organisation's control. It consists of two interactive and interrelated segments - the operating (or market) environment and the remote (or macro-) environment.

The market environment comprises the competitive, consumer and supplier environments. The macro-environment includes the economic, technological and socio-cultural environments, together with the legal and political dimensions. Some examples of the market and macro environments are:

- **Competitive environment** (industry competitors): By assessing its competitive position, a tourism organisation can improve its chances of designing strategies that optimise environmental opportunities
- **Customer environment** (buyers): By developing a demographic profile of present and prospective customers in terms of their geographic origins, lifestyle characteristics and attitudes towards the tourism product, a tourism organisation will be in a better position to plan the strategic operations of the organisation and to anticipate changes in the market. Geotourism is just beginning to develop in South Africa. Questions to be answered are:
    - Will South African geotourists be 'empty-nesters' with big discretionary incomes?
    - What will be their age and education levels?
    - Are they post-retirement tourists (55-65 years of age or older?)

- How many overseas tourists will be interested in geotourism?

By using the findings by Cooke (2007:7) about geotourist segments in the USA it could be a starting point to segment the future geotourist market in the country (c.f. 3.5.3). From discussions with people of all ages in the country it was established that they some 'empathy' and care for the environment. They have high income and educational levels as well as a high incidence of travel. Thus, they will probably the future geotourists. In South Africa at present, the domestic tourism is very strong, and the impressive performance of the international tourism market continues to surprise the industry. Cape Town, particularly, is a highly acclaimed destination in many international markets, and was once voted the fourth most desirable destination in the world, which is a definite pointer for any local organisation relying on the tourism industry

- **Supplier environment**: The tourism supplier environment is very complex. It includes providers of support services such as roads, water, electricity and sewerage. It also includes private sector suppliers such as retailers and wholesalers, workers who supply labour, and suppliers of capital
- **Economic environment**: Economic considerations are important in tourism because consumption patterns in tourism are largely dependent on the economic conditions in the market. The influence of economic conditions is more obvious in leisure travel where, in many countries with advanced and developed economies, the average disposable income *per capita* has grown large enough to enable the majority of the population to take holiday trips away from home
- **Technological environment**: An obvious area for strategic analysis is technology and innovation, as applied to new processes, new systems and new business opportunities in general. Technology and travel are natural partners. In the past, tourism has benefited greatly from technological inventions such as the motor car, the aeroplane and television
- **Political/legal environment**: Government interest in tourism has stemmed primarily from concern regarding its economic significance, particularly its tax-earning and employment potential. Tourism demand can be largely influenced by legislative actions at various levels of government. Further, international politics play a significant role in the volume of travel and tourism business
- **Socio-cultural environment**: Social and cultural considerations involve the beliefs, values, attitudes, opinions and lifestyles of people in the market environment. These have developed from their cultural, ecological, demographic, religious, educational and ethnic conditioning. Moreover, as social attitudes change, so do the leisure patterns of consumers. The overall direction of values and lifestyles thus affects travel and tourism in general, while underlying social trends have a bearing on specific elements and markets.

Because changes in the external environment have the potential to influence an individual establishment greatly, the environment must be scanned regularly.

5.5.1 THE SWOT ANALYSIS

Schutte (1999:40-41) is of the opinion that tourism takes place in a dynamic and rapidly changing environment, and so it must be monitored and adapted by everyone involved in the tourism industry. The development of a situation analysis is very important for regional tourism.

A regional situation analysis consists of two broad elements:

- The identification of opportunities and threats that might originate from changes in the environment (environmental analysis)
- The identification of the strengths and weaknesses of the region and of the business units in the region (resource analysis).

Once the environment has been scanned, the manager can proceed to the next step in the strategic management process, namely the SWOT analysis.

De Bruyn and Klopper (2005:148-149) says that a useful instrument for helping tourism managers to identify key internal and external variables and pinpoint potential business opportunities is the SWOT analysis. This analysis is the process of systematically identifying an organisation's strengths and weaknesses, the opportunities and threats facing it. In summary:

- Strengths are the resources or abilities that give a tourism organisation an advantage over its competitors
- Weaknesses must also be acknowledged so that they may be minimised
- Opportunities are the potentially favourable conditions in the organisation's environment
- Threats are major unfavourable circumstances or impediments to an organisation's present or future position.

Table 5.1 shows some of the typical issues that managers need to consider when a SWOT analysis is conducted.

TABLE 5.1: ISSUES TO BE CONSIDERED IN A SWOT ANALYSIS

Strengths	**Weaknesses**
Competitive advantages?	Obsolete facilities?
Ability to innovate?	Lack of management depth?
Distribution system?	Low brand name identity?
Marketing skills?	Weak marketing image?
Brand name recognition?	Low research and development
Cost advantages?	capability?
Financial strength?	Below average marketing skills?
Complete product line?	Lack of financial muscle?
Reputation/image?	High operating costs?

	Shaky reputation/image?
Opportunities	**Threats**
Expand product line? Enter new markets? Diversify to broaden risk? Improve buyer/supplier relationships? Improvements to technology? Improvements to the regulatory/legal climate? Favourable demographic changes?	New competitors? Slowing market growth? Changing needs of customers? Adverse demographic changes? Weakening economy? Unfavourable regulatory environment?

Abdullaev (2006:4) used The LEADER II model for a SWOT analysis as depicted in Figure 5.10.

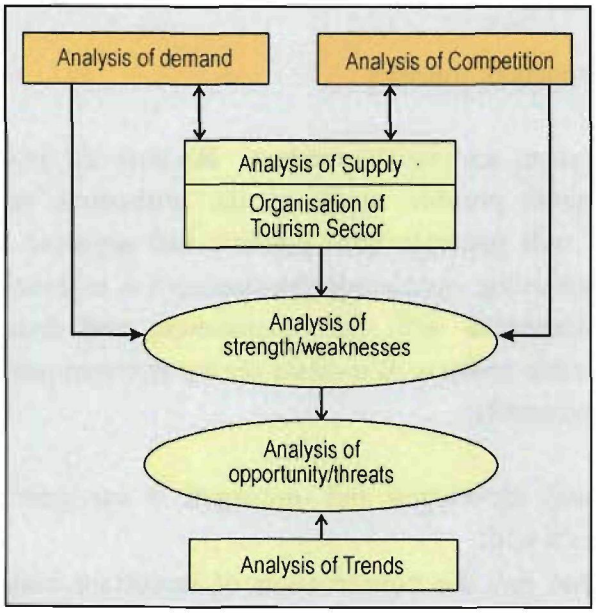


Figure 5.10: Evaluation of local touristic potential (LEADER II model as quoted by Abdullaev: 2006:4)

5.5.2 ENVIRONMENTAL, ECONOMIC AND SOCIAL ANALYSIS OF GEOTOURISM

In the document: "*National and regional planning. Methodologies and case studies*" (1994:29-38), it was stated that economic, environmental and socio-cultural considerations must be well understood in the successful planning, development and management of tourism. The primary reason for developing tourism, in most places, is for its economic benefits. In keeping with the concept of sustainable development, environmental and socio-

cultural considerations are also just as important. All three components must be weighed together to achieve a balanced development of tourism.

Sustainability was discussed in detail in the context of social, environmental and economic interconnected aspects in Chapter Two of this work. The model of Abdullaev (2006:1-5) for sustainable tourism (as discussed in Chapter 2, c.f. 2.3, Figure 2.9) can be applied by analysing geotourism in South Africa for a sustainable approach to its development, management and use. Geotourism development in rural areas presents a complex set of benefits and costs that requires thorough assessment. Public involvement and opinion is important and should be well understood by the local authorities responsible for geotourism development. Local authorities should authorise more research that would include social and ecological aspects. The economic, environmental and social analysis of geotourism will prove the basis for sustainability of the endeavour. In order to achieve such balanced development, integrating and respecting such basic principles as the precautionary principle, intra- and inter-generational equity and the responsibility for the preservation of the environment and natural resources for future generations is necessary.

5.5.2.1 Environmental impacts of tourism

Tourism and the environment are inter-dependant. Because the physical (both natural and manufactured) environments provide many of the attractions needed for tourists, the development of tourism will generate both positive and negative environmental impacts. Thus, a major factor in achieving sustainable development is to develop and manage tourism in a manner that is compatible with the environment and does not degrade it. An understanding of the possible impacts of tourism on the environment is a pre-requisite when planning tourism environmentally.

If tourism is well-planned, -developed and -managed, it can generate important positive environmental impacts, as it will:

- Help to justify and pay for conservation of important natural areas, wildlife and development of national parks because they are major attractions for tourists
- Help justify and pay for archaeological and historical sites as attractions for tourists
- Help improve the environmental quality of areas (because tourists like to visit places that are attractive, clean and unpolluted)
- Increase local environmental awareness when residents observe the tourists' interest in conservation.

If tourism is not well-planned, -developed and -managed, it can generate significant negative environmental impacts, such as:

- Water pollution
- Air pollution
- Noise pollution
- Waste disposal problems

- Ecological disruptions of natural areas caused through overuse and abuse by tourists and inappropriate tourism development
- Damage to archaeological and historical sites through overuse and misuse by tourists and inappropriate tourism development
- Environmental hazards and land-use problems resulting from poor planning, siteing and engineering of tourism attractions and facilities.

A concern for environmental protection should be an integral part of the planning process. The application of the environmental planning and sustainable development process is essential, that is, concern for the establishment and the determination of carrying capacities, of the tourism area.

According to The United Nations Environmental Program (UNEP), the quality of the environment, both natural and man-made, is essential to tourism. Tourism's relationship with the environment is complex because it involves many activities that can cause adverse environmental effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, and of tourism facilities that include resorts, hotels, restaurants, shops, golf courses and marinas. The negative impact of tourism development can destroy the very environmental resources on which it depends. Tourism has also the potential to create beneficial effects on the environment by contributing to environmental protection and conservation. Tourism can be a way to raise awareness of environmental values, and it can serve as a tool to finance protection of natural areas and so increase their economic importance (http://www.uneptie.org/pc/tourism/sust-tourism/environment.htm).

Financial contributions would include:

- Direct financial contributions. Tourism can contribute directly to the conservation of sensitive areas and habitat. Revenue from park entrance fees, and similar sources, can be allocated specifically to pay for the protection and management of environmentally sensitive areas. Special fees for park operations or conservation activities can be collected from tourists or tour operators
- Contributions to government revenues. Some governments collect money in more far-reaching and indirect ways that are not linked to specific parks or conservation areas. User fees, income taxes, taxes on sales or rental of recreation equipment, and license fees for activities such as hunting and fishing can provide governments with the funds needed to manage natural resources. Such funds can be used for overall conservation programs and activities, such as park ranger salaries and park maintenance. (http://www.uneptie.org/pc/tourism/sust-tourism/env-conservation.htm)

In the document: "*National and regional planning. Methodologies and case studies*" 1994:29-38), it was stated that sound environmental management of tourism facilities can increase the benefits to natural areas. This would require careful planning for controlled development based on the analysis of the environmental resources of the area. Planning will help to make choices between conflicting uses or to find ways of makeing them compatible.

Planning early for tourism development should be done so that damaging and expensive mistakes can be prevented, thus avoiding the gradual deterioration of environmental assets significant to tourism. Cleaner production techniques are important tools for planning and operating tourism facilities in such a way as to minimise their environmental impacts.

Environmental awareness-raising tourism has the potential to increase public appreciation of the environment, and to spread awareness of environmental problems when it brings people into closer contact with nature and the environment. This type of tourism may heighten awareness of the value of nature and so lead to environmentally conscious behaviour and to activities intended to preserve the environment. Tourism must incorporate the principles and practices of sustainable consumption if, ultimately, it is to be sustainable. These should include building consumer demand for products that have been made using cleaner production techniques, and for services, including tourism services, that are provided in a manner that minimises environmental impact. The tourism industry can further play a key role by providing environmental information and by raising awareness among tourists of the environmental consequences of their actions.

By protection and preservation, tourism can significantly contribute to environmental protection, to the conservation and restoration of biological diversity, and to the sustainable use of natural resources. National Parks and wildlife parks, can be created because of their attractiveness and pristine, natural areas and sites can be identified as valuable and needed to keep the attraction alive.

Regulatory measures are necessary to help offset negative impacts, for example, controls on the number of tourist activities and on the movement of visitors within protected areas can limit impacts on the ecosystem, and so help maintain the integrity and vitality of the site. Limits should be established after an in-depth analysis of the optimum sustainable visitor capacity and imposing such limits can reduce the negative impacts on resources. Just such a strategy has been adopted in the Galapagos Islands, where the number of ships allowed to cruise the remote archipelago is limited. Only designated islands may be visited to ensure that visitors have little impact on the sensitive environment and animal habitats (www.uneptie.org/pc/tourism/policy/principles.htm).

5.5.2.2 Socio-cultural impacts of tourism

Tourism can bring both benefits and problems to the local society. These are more difficult to measure than economic or environmental impacts, and are major considerations in developing tourism in any given place. Any form of new development will bring changes. If tourism is well-planned, -developed and -managed in a socially responsible manner, it can bring several types of socio-cultural benefits, by:

- Improving the living standards of people
- Conserving the cultural heritage of an area
- Helping to develop and maintain museums, theatres and other cultural facilities

- Reinforcing or even renewing a sense of pride by residents in their culture, particularly when they observe tourists appreciating the culture
- Providing the opportunity for cross-cultural exchange between tourists and residents who could learn of, and come to respect, each other's culture.

If tourism is not well-planned, socio-cultural problems such as overcrowding and cultural degradation can occur. To overcome this, tourism could be developed on a gradual basis so that society has time to adapt to it, be educated about it, and to learn how to participate in its benefits. It has been emphasized previously that local residents should be involved in the planning and development of tourism so that they can influence the decision-making process and so feel that they are part of tourism. Additional socio-cultural control measures are:

- The maintenance of the authenticity of local customs
- The preservation of local architectural styles, and the encouragement of new development by the use of local architectural themes
- Ensuring that local residents have convenient access to tourist attractions
- The provision of inexpensive, perhaps lower, admission fees for local residents
- Educating local residents about tourism's concepts, benefits, problems, the local tourism development policy, their participation in tourism and the social impact of visitors in the area
- Providing information to tourists about the local society
- The training of employees to work more effectively in tourism facilities
- Applying strict controls on crime, drugs, and other undesirable potential social effects.

Before any tourism development project can start, an environmental impact assessment (EIA) has to be carried out. This should include all types of impacts - economic, environmental and socio-cultural.

According to The United Nations Environmental Program (UNEP), the socio-cultural impacts of tourism are the effects of tourism on host communities and of their interaction with the tourism industry. For a variety of reasons, host communities are often the weaker party in interactions with their guests and service providers, thus leveraging any influence they might have. These influences are not always apparent, as they are difficult to measure, frequently depend on value judgments, and are often indirect or difficult to identify.
The impacts arise when tourism brings about changes in value systems and behaviour, and thereby threatens indigenous identity. Furthermore, changes often occur in community structure, family relationships, in collective traditional life styles, ceremonies and morality. Nevertheless, tourism can also generate positive impacts as it can serve as a supportive force for peace, can foster pride in cultural traditions and can help avoid urban relocation by creating local jobs.

As often happens when different cultures meet, socio-cultural impacts are ambiguous: the same objectively-described impacts are seen as beneficial by some groups, and are perceived as negative, or as having negative aspects, by other stakeholders. Negative socio-cultural

impacts from tourism are changes to, or loss of, indigenous identity and values, perhaps culture clashes, or physical influences that causes social stress and ethical issues.

Tourism can contribute to positive developments, not just negative impacts, for it has the potential to promote social development through employment creation, income redistribution and poverty alleviation. The positive consequences of tourism will, however, occur only when tourism is practiced and developed in a sustainable and appropriate way. Involving the local population is essential. A community involved in planning and implementation of a local tourism product has a more positive attitude, is supportive and has a better chance to make a profit from tourism than a population passively ruled, or overrun, by tourism. One of the core elements of sustainable tourism development is community development, which a process is creating a capacity to make decisions that consider the long-term economy, ecology and equity of all communities (www.uneptie.org/pc/tourism/policy/principles.htm).

5.5.2.3 Economic impacts of tourism

In tourism, several standard types of economic measurements can be made. Even so, it is often difficult to measure the economic contribution of tourism. However, by drawing on various information sources, tourism economists can make calculations that are sufficient to indicate the general extent of tourism's economic impacts. The standard economic measurements are as follows:

- Income generated and contribution to the Gross National or Domestic Product. This indicates the relative importance of tourism in the total economy
- Foreign exchange received from international tourism
- Local employment generated by tourism. This figure is calculated for the direct-, indirect-, induced- and construction types of employment
- The multiplier effect. Referring to the stimulus that an external source income has on the local economy
- Contribution made by tourism to government revenues.

A major benefit from tourism is that it helps to justify and to pay for tourism transportation facilities, services and infrastructure. Another benefit is that it also serves as a catalyst for expansion in other economic sectors.
Several techniques are used in promoting the enhancement of the economic benefits. These should be incorporated in the planning process so that possible subsequent problems are prevented or reduced before they occur. The techniques referred to are:

- Strengthening the linkages between tourism and other economic sectors. This reduces the imported content of tourism and so provides more local employment and income from tourism. The tourism industry should be encouraged to utilise more local products
- Encouraging in-country, in-region and local ownership of tourist facilities and services, so that more of the profits of tourism can be retained locally. Because loss of income is the result when trans-national hotel companies use foreign hotel

management, it should be permitted only to a limited extent

- Maximizing local employment in tourism thus encouraging proper training of persons needed to work in tourism. Training should be extended to supervisory and management levels so that these people can fill the higher posts subsequently;
- Increase tourism expenditures by encouraging shopping experiences, and the selling of local goods
- Developing tourism gradually so that problems associated with inflated prices for goods, services and land can be reduced as the economy has time to adjust to the new developments.

The United Nations Environmental Program (UNEP) believes that the economic impacts of tourism are such that the tourism industry generates substantial economic benefits to both host countries and tourists' home countries. Particularly in developing countries, one of the primary motivations for a region to promote itself as a tourism destination is this expected economic improvement. Unfortunately, as with other impacts, this massive economic development brings along both positive and negative consequences (www.uneptie.org/pc/tourism/policy/principles.htm).

Gray (2004:85-112) calculated a financial value on all environmental assets, but many geological materials have more than a mere theoretical value. Rocks, minerals, sediment, soil and even fossils have a real economic value. Fossils in particular have significant economic value if they are well preserved. The public will pay large amounts of money for dinosaur fossils.

5.5.3 LEGAL INSTRUMENTS REGULATING GEOTOURISM IN SOUTH AFRICA

Komoo (2004) is of the opinion that "*To bring the geoconservation effort a step further, there is a need to embrace appropriate legal and administrative instruments, including laws, and institutional and management support system, for successful implementation of conservation activities*" (http://www.worldgeopark.org/review.htm).

Three Heritage Legislation Acts (No's 11, 25, 49 of 1999) in South Africa were promulgated in 1999. The first act was Act 11: "***The National Heritage Council Act***" and its aims are:

- To establish a juristic person to be known as the National Heritage Council;
- To determine its objects, functions and methods of work
- To prescribe the manner in which it is to be managed and governed
- To regulate its staff matters and financial affairs
- To provide for matters connected there(to).

The South African Heritage Resources Agency (SAHRA), a statutory organisation, was established as the national administrative body responsible for the protection of South Africa's cultural heritage. It should coordinate a national strategy for the identification of

cultural heritage resources. "***The National Heritage Resources Act, No. 25***", was promulgated in 1999, and the aims of the act (p.2) are:

- To introduce an integrated and interactive system for the management of the national heritage resources
- To promote good government at all levels, and empower civil society to conserve for the future their heritage resources so that they may bequeathed to future generations
- To lay down principles for governing heritage resources management throughout the Republic
- To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa
- To establish the South African Resources Agency (SAHRA) together with its council to co-ordinate and promote the management of heritage resources at national level
- To set norms and maintain essential national standards for the management of heritage resources in the republic and to protect heritage resources of national significance
- To control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;
- To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of resources
- To provide for the protection and management of conservation-worthy places and areas by local authorities
- To provide for matters connected there(to).

A system for management of national heritage resources was stipulated under general principles (p.12, 14) as follows:

1. For the purpose of (the) act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operation of the heritage authorities
2. The national estate may include:
    a) Places, buildings, structures and equipment of cultural significance
    b) Landscapes and natural features of cultural significance
    c) Geological sites of scientific or cultural importance
    d) Archaeological or paleontological sites
    e) Movable objects, including:
        i) Objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens
        ii) Its potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage
        iii) Its importance in demonstrating a high degree of creative or technical achievement at a particular period.

3. A place or object is considered to be part of the national estate if it has cultural or other special values because of:
    a) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage
    b) Its importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural heritage
    c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

The object of the act is to coordinate the identification and management of the national estate. The aims are to introduce an integrated system for the identification, assessment and management of the heritage resources and to enable provincial and local authorities to adopt powers to protect and manage them. The general principles for heritage management (p.16) were laid down as follows:

1. Principles to be recognised are:
    a) To ensure that heritage resources are effectively managed
        i) The skills and capacities of persons and communities involved in heritage resources management must be developed
        ii) Provision must be made for the ongoing education and training of existing and new heritage resources management workers.
    b) Laws, procedures and administrative practices must:
        i) Be clear and generally and generally be available to those affected thereby
        ii) In addition to serving as regulatory measures, also provide guidance and information to those affected thereby.
2. Heritage resources contribute significantly to research, education and tourism and they must be developed for these propose in a way that ensures dignity and respect for cultural values
3. Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development
4. The identification, assessment and management of heritage resources of South Africa must:
    a) Promote the use and enjoyment and access to heritage resources, in a way consistent with their cultural significance and conservation needs
    b) Contribute to social and economic development
    c) Be fully researched, documented and recorded.

SAHRA and a provincial heritage resources authority (p.18), may prescribe any principle of heritage resources management, according to the general principles of heritage management. SAHRA must, by regulation, establish a system of grading of places and objects that form part of the national estate, and which distinguishes between at least three categories:

1. Grade I: Heritage resources with qualities so exceptional that they are of special national significance
2. Grade II: Heritage resources which, although forming part of the national estate, can

be considered to have special qualities which make them significant in the context of a province or region; and
3. Grade III: Heritage resources worthy of conservation.

According to the Act (p.18, 20) a three-tier system for heritage resources management will exist:

1. National level functions are the responsibility of SAHRA. They will identify and manage Grade I heritage resources.
2. Provincial level functions are the responsibility of provincial authorities. They will identify and manage Grade II heritage resources.
3. Local level functions are the responsibility of local authorities. They will identify and manage Grade III heritage resources.

The Act makes provision that a provincial heritage authority (p.40, 42) may declare national and provincial heritage sites, respectively. Any person may submit a nomination to them for a place to be declared a national heritage or national heritage site. All heritage sites must be marked with a badge indicating their status. The well-known '*national monument*' disappeared and other formal categories of protection under the old National Monuments Council (NMC) have been modified, and a new category of 'national heritage site' exists for sites of outstanding national importance.

No person may destroy damage, deface, excavate, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of the site. The responsible heritage resource authority may make regulations pertaining to heritage sites under its control or to any other heritage site with the owner of that site:

- Safeguarding heritage sites from destruction, damage, disfigurement, excavation or alteration
- Regulating the conditions of use of any heritage site or the conditions for any development thereof
- Regulating the admission of members of the public to a heritage site, and the fees payable for such admission.

Although South Africa has an abundance of world known natural resources, only the identification of cultural heritage resources is emphasised by the Act. Heritage objects such as palaeontology and meteorites (p.50, 58, 60) are very briefly described. They are not part of cultural heritage, but are seen as part of geoheritage. Natural heritage is only mentioned and with regard to geology and geoconservation, it has very little significance. For these reasons, a completely new Act concerning natural heritage should be formulated in the future. This should be done with the help of geoscientists who have the necessary knowledge. Even so, a positive aspect of the Act (p.68, 70) is that heritage resources for public enjoyment, education, research and tourism must:

- Erect explanatory plaques and interpretive facilities, including interpretive centres and

visitor facilities
- Train and provide guides
- Mount exhibits
- Erect memorials
- Use other means for effective presentation.

(ACT No. 25, 1999: NATIONAL HERITAGE RESOURCES ACT, 1999, (http://www.sahra.org.za/).

The final Act to be examined, "***The World Heritage Convention Act,* No. 49**", was promulgated in 1999. The aims here are:

- The incorporation of the World Heritage Convention into South African law
- The enforcement and implementation of the world heritage Convention in South Africa
- The recognition and establishment of World Heritage Sites
- The establishment of Authorities and the granting of additional powers and duties of such Authorities, especially those safeguarding the integrity of world Heritage Sites
- Where appropriate, the establishments of Boards and Executive Staff Components of the Authorities
- Integrated management plans over World Heritage Sites
- Land matters in relation to World Heritage Sites
- Financial, auditing and reporting control over the Authorities
- To provide for incidental matters.

5.6 STRATEGY FORMULATION

Saayman (2002:107) states that to formulate strategic plans the following must be undertaken:

- Determining how aims are to be achieved
- The allocation of responsibilities, as well as the necessary authority, to people;
- Determining time for completion
- Determining the resources needed to achieve aims
- Communication and co-ordination must be undertaken, while
- Pro-active action is required.

Saayman (2002:107) states that "*Strategic management and planning in particular can be regarded as the core of management in a business, because functional management flows directly from it. This type of management also indicates the direction of the business, and in spite of the importance of strategic management, there are still many organisations/businesses that do not do this important planning. Without strategic planning, there is no question of quality management. The latter is of cardinal importance for any business where people and service play a big role*".

Strategy is the manner an organisation seeks to achieve its vision and mission. It is also a course of action that includes the specification of planned resources required, to achieve a specific objective and deploy its capabilities (www.dictionary.bnet.com/definition /Strategy.html, www.pilotsoftware.com /resources/pm_glossary.html). According to Thompson and Strickland (1995:7), in essence, "*Strategy-making is fundamentally a market-driven entrepreneurial activity. Risk-taking, venturesomeness, business creativity, and an eye for spotting emerging market opportunities are all involved in crafting a strategic action plan*".

Andrews (1971, as cited by Macmillan and Tampoe, 2000:13) defines a strategy as "*The pattern of major objectives, purposes or goals and essential policies or plans for achieving those goals, stated in such a way as to define what business the company is in, or is not to be I,n and the kind of company it is or is to be*". However, Macmillan and Tampoe (2000:14) give a new and succinct definition of strategy as "*Ideas and actions to achieve and secure the future*".

Thompson and Strickland (1990:35-41) state that there are four levels of strategy making:

1. **Corporate strategy** - the overall managerial game plan for a diversified company.
2. **Business strategy** - the managerial game plan for a single business.
3. **Functional area strategy** - the functional-specific approaches and moves crafted by management.
4. **Operating strategy** - the narrower and more detailed approaches and moves lower level functional managers and geographic–unit managers to achieve the strategy-supporting performance objectives established in their areas of responsibility.

In the publication "*Making Tourism More Sustainable: a Guide for Policy Makers*" (http://www.unep.fr/pc/tourism/library/A_Guide_for_Policy_Makers.htm:60-62), it is stated that "*Developing a strategy for sustainable tourism should be a participatory process that involves a range of stakeholders in order to foster wider adherence to the strategy and commitment to its implementation. The mix of stakeholders involved in developing the strategy should reflect the make up of partnership structures for tourism identified at a national or local level ..... It is necessary at the outset to secure long-term commitment both to the strategy and, crucially, to its implementation*". This definition is believed to be most relevant and so will be applied for geotourism.

Three stages can be identified in the formulation of a strategy:

- Analysing conditions, problems and opportunities
- Identifying objectives and making strategic choices, and
- Developing policies and action programs.

1. **Analysing conditions, problems and opportunities**

The first stage of strategy development involves a careful and objective look at the state of geotourism in the destination, and the resources on which tourism depends or has impacts,

both at present and in the future. Consideration should be given to aspects and to attributes that have a particular bearing on the sustainability of geotourism, so that the data gathered and questions asked will be appropriate. Surveys, consultation and technical studies concerning the situation should be analysed.

The situation analysis is a first step in identifying a range of key issues for the sustainability of geotourism in a given destination, and opportunities for the future. Consultation should be done with a wide range of stakeholders to clarify the issues, and priorities will begin to emerge from this process. Various consultation and communication techniques can be used that is, open meetings, stakeholder workshops and web-based consultation. The local media should be involved to generate interest.

2. **Identifying objectives and making strategic choices**

In the second stage, national and local governments must work with stakeholders to agree on a vision, and on a broad set of strategic objectives, for geotourism. These should be based on the results of the analysis referred to above. The vision and strategic objectives should be appropriate for the country or destination, and should fully embrace concerns for economic, social and environmental sustainability. Objectives will obviously vary from place to place, but they should always aim to strike a balance in the relative priority given to issues such as support of conservation or reducing the negative environmental impact. The broad objectives should be the overarching drivers for geotourism policies and actions. A number of strategic choices must be made at this stage, such as the level and nature of tourism appropriate for the destination, the target markets and the selection of appropriate tourism products.

3. **Developing policies and action programs**

The third stage involves the development of specific policies and actions that relate to the aims and strategic objectives and that reflect the strategic choices made. Further consultation, that includes the possibility of establishing technical working groups, may need to be undertaken in order to develop particular policies and actions. The range of instruments that governments can use to implement policies and to maximise sustainability should be established or strengthened. An action program that indicates lead agencies, approximate resources, targets, timescale and associated monitoring should be established. Actions should then be implemented by the agencies concerned. Progress made should be reported to the appropriate authority. The results should be measured against the sustainability indicators that were originally identified (http://www.unep.fr/pc/tourism/documents/Making%20Tourism%20More%20Sustainable-A%20Guide%20for%20Policy%20Makers/making%20tourism%20more%20sustainable%20part1.pdf)

Schutte (2007: 3-4) uses the guidelines above and says that there should be four key elements in a geotourism strategy:

1. Vision - a clear vision for the future of geotourism
2. Principles - a basis for widespread agreement on future planning and management
3. Priorities - priorities for the future management, and

4. Action - detailed policies and actions to achieve progress with each priority.

When developing a geotourism strategy, the following actions are necessary:

- The establishment of an integrated policy
- Establishing guidelines for more sustainable management plans
- Identification of strategic opportunities for geosite development
- The engagement with, and development of, a wide range of partnerships
- Developing a co-ordinated approach to strategy implementation
- Identification of solutions for geosite development and management
- Evaluation of success.

Special attention should be paid to the following points:

- Learning the techniques of sustainable tourism planning, development, marketing and promotion
- Understanding the essential role the community plays in place-making tourism development
- Creating a comprehensive geotourism plan, to include economic, social, historic, cultural, commercial and environmental values
- Involvement of key stakeholders in the implementation of the geotourism development strategy
- Discovering the importance of creativity, commitment, confidence and leadership in tourism destination development
- Experiencing the community change by applying sustainable tourism planning to emerge from an industrial landscape as a successful visitor destination.

According to the "*The Austrian Strategy for Sustainable Development*" (2002), sustainable development combines social, economic and environmental concerns for the future-oriented development of society. The central objective is not merely a global concept but also must be sought at regional and local levels. The strategy describes action fields, goals and starting points for a more sustainable future. It emphasises the integration of the fields of economy, social affairs and environment, not just in the process of implementation. Sustainable development is seen as a task that stretches over a lengthy period. Any strategy under consideration is just the beginning of a continuing process. The Austrians developed priority goals, and the indicators for measurement of progress to achieve the goals were defined.
The first steps are merely examples of the process of change. Existing plans and programs must be evaluated for agreement with the contents and goals for future and further development. The process must be secured so that:

- The strategy must be implemented
- The pre-determined goals must be achieved in the defined time span
- The processes and instruments must be understood and agreed
- Participation, self-organisation and engagement must be promoted
- The public must be regularly updated
- Mechanisms for coordination of the fit with existing strategies must be established

- Strategic networking must be established on a local and regional scale
- With continuing monitoring, the status of implementation must be ascertained
- Regular evaluation and reflection make further development of the strategy possible.

Sustainable development is a cross-sectional subject and an interdisciplinary task. For this reason, numerous actors will be involved in the strategy process. The sustainability strategy must be put into concrete terms and thereafter, implemented by means of work programs and each program focuses on specific subjects
(www.nacchhaltigkeit.at/strategie.php3,
(http://www.nachhaltigkeit.at/strategie/pdf/strategie020709_de.pdf,
http://www.nachhaltigkeit.at/strategie.php3?lang=en&p=strat_strategie.php3).

According to Edgell (2006:22-33, 93-99), a carefully designed strategy for sustainable tourism may offer a quality environment and improved living standards for future generations. These are also appropriate to the case of geotourism. Economic growth can be compatible with sustainable geotourism development, for example. Geotourism development must be participatory involving local people and businesses in their decisions. To reach the goal of sustainable tourism development requires concomitant progress in economic, human, environmental, political and technological areas. Local participation and control is the key to success of sustainable development. Tourism development must have a defined and well-thought-out strategy.

Certain basic steps are necessary when sustainable tourism guidelines are contemplated. These are:

- First, to inventory, access, and seek to develop as many as possible visitor attractions that have roots in the local community or complement local activities. Local culture and heritage initiatives, if properly developed and maintained, can improve the overall ambience and cleanliness of the area and can add to the quality of community life. At the same time, local pride in the area may evolve with good leadership of geotourism moves throughout the community
- Secondly, development within each local community should strive to preserve the uniqueness of the environment by their commitment to achieving this shared goal. A community should capitalise on special natural resources, any period historical buildings or sensitive cultural traits available. Thus, one can link it with cultural tourism. This maintains the authenticity of the area, enriching its value to visitors and local people alike
- Thirdly, any realistic guidelines for sustainable tourism development must include community involvement. This is both good public relations and also essential to the ultimate success of the endeavour. The community then becomes an effective force in the implementation of the program
- Fourthly, a community should seek to measure geotourism development in light, not only of the environmental costs, but also of both the social costs and benefits to the area. Sustainable geotourism should be viewed in terms of both short-term and long-

term value to the community. Intangible values such as quality of life should be included in the overall quantification

- Fifth and finally, marketing of sustainable geotourism must utilise e-commerce tools as well as taking advantage of cooperation such as partnerships and strategic alliances. Most geotourism destinations will rely heavily on niche or other forms of database marketing. Effective, updated websites will be the key to marketing the local geotourism products.

Another point that is raised by Weaver (2006:153-154, 173) is to outline sustainable tourism strategies that are broadly spatial or geographical in character. In the case of tourism, different spatial strategies can facilitate the sustainable development of tourism in different kinds of destinations. The front stage/backstage continuum is the basis for these strategies. The front stage is an area where sustainable tourism is concentrated and fostered, while the backstage is an area where local residents can seek refuge from the tourism sector.

Edgell (1995:95) believes that strategies for rural areas should also be considered. In 1992, the Organisation for Economic Co-Operation and Development (OECD) stated that there are six factors that determine the suitability of rural areas for sustainable development:

- Scenic value including mountains, seashores, lakes, islands, rivers, and special interest scenery such as wetlands or mixed deciduous forest
- Special wildlife assets
- Cultural assets including historic buildings, towns, villages, sites and/or ethnic heritage of all types
- Special facilities for sports including hunting, fishing, skiing and hiking
- Ease of access for large populations, and
- Effective promotional, commercial and management skills.

A good example of a geotourism strategy is that described for the Flinders Ranges, Australia, by Edmonds (2006:1-43) where the goals were:

- To develop a stronger and more distinctive brand for the Flinders Ranges
- To generate new and sustainable economic opportunities for the Flinders Ranges community
- To create a strong sense of regional identity and connectivity between all districts
- To protect the unique natural and cultural assets of the Flinders Ranges.

Edmonds (2006:1-43) describes the Flinders Ranges Geotourism Strategy as an illustration of an initiating document for the development of geotourism in the geotourism region of South Australia. The strategy provided a vision, set goals and objectives and mapped out a comprehensive action plan. The nascent concept of geotourism was defined in detail from Tourtellot's geographical point of view. The region's geo-assets were then identified and it was explained why the Flinders Ranges were so well placed to develop these as the platform for a reinvigorated regional tourism industry. The strategy profiled the host community, examined markets and considered interpretation opportunities. Finally, the challenges that faced the Flinders Ranges community, as it embraced the concept of geotourism, were listed.

The Strategy could thereafter be utilised as the main reference document for seeking funding and investment opportunities for the further development of geotourism in the Flinders Ranges.

However, the GSSD (2006:6) believes that "*Good Governance is the central pre-condition for achieving sustainable development. It is now recognised that without effective governance (that is, management, control and policing) achieving a proper management regime is impossible*". Under the present political climate in South Africa, where there is a complete lack of governance at all levels, it will not be obtained (http://www.gdace.gpg.gov.za/PDF/GSSD%20(draft%201%20for%20public%20review.pdf).

Even so, all the above-mentioned guidelines of Abdullaev and the GSSD could be used most appropriately for geotourism development and promotion in South Africa.

5.7 IMPLEMENTATION

Thompson and Strickland (1995:13) believe that "*Strategy implementation is fundamentally an action-oriented, make-it-happen activity. Organizing, budgeting, policy-making, motivating, culture-building, and leading are all part of achieving the target results*".

Saayman (2002:107) is of the opinion that the implementation of strategic plans deals with making a strategic choice that is concerned with the generation and evaluation of various strategic options and with the selection of a proper strategic strategy. Of course, the aim is to achieve a competitive advantage over competitors. The implementation should take place at all levels in the organisation and a checklist method is very effective in helping ensure this. It means that that every person concerned with a decision that is based on the strategic plan must receive a checklist of what should be done. The checklist goes hand in hand with the action plans, and should then be implemented.

De Bruyn and Klopper (2004:154-158) state that implementation of strategic management represents the action phase of the strategic management process, that is, the implementation of the strategy chosen. After strategies have been formulated, chosen and established, they must be translated into concrete action, and that action must be carefully implemented. A key aspect of strategy implementation is to institutionalise the specific strategy so that it permeates daily decisions and actions in a manner that is consistent with long-term strategic success.

The following organisational elements provide the fundamental, long-term means for implementing an organisation's strategy:

- **Organisational structure:** Activities, responsibilities and interrelationships must be organised in a manner that is consistent with the chosen strategy;
- **Organisational leadership:** Leadership style must support the strategy chosen; and
- **Organisational culture:** The shared values, beliefs, expectations and norms in the organisation must be developed so that they are consistent with the strategy chosen.

Dwyer and Edwards (2003) say that, after having described the fields of action and the key objectives, the strategy document deals also with implementation. For this purpose, five principles have been formulated:

1. Systematic and efficient implementation. An important feature of this principle is to link the top-down with the bottom-up approach
2. Coordination through cooperation
3. Transparency
4. Participation, information and communication. Sustainable development is only possible through joint engagement, and
5. A learning strategy.

When considering the implementation of tourism plans, careful attention must be given to the following:

- The critical role the community can play in the achievement of sustainable economic development through tourism
- The importance of leadership and skills training programs, and
- The roles of different stakeholders in strategy implementation.

An essential consideration in implementation is the financing of geotourism development. The type of funding needs, and the possible sources thereof, must be spelled out and an investment strategy formulated. Certain basic considerations that must be made are the following:

- Funding needs
- International source of funds
- Tourism development strategy.

(http://www.besteducationnetwork.org/modules_planning.php)

The "*The Austrian Strategy for Sustainable Development*" (2002) gives guidelines for the whole implementation process are that are based on the following principles:

- Systematic and efficient implementation by means of sectoral and regional strategies. An important feature of this principle is to link the bottom-up engagement the top-down superior coordination. In this respect, the responsibilities are referred to area corporations and institutions to set concrete goals and measures for achieving goals. An important instrument is the work program
- Coordination by horizontal and vertical cooperation to secure the consistency and coherence of politics
- Transparency by the continuing monitoring on a basis of appropriate indicators
- Enhancement of participation, information and communication of stakeholders and a broad public work
- Further development by evaluation and a '*learning strategy*'
- Dynamic and ongoing process for further developing the strategy.

Pralong (2004:225) is of the opinion that three steps are necessary for implementing and developing geotourism by the geodidactic use of natural sites concerning Earth Sciences in the areas of Crans-Montana-Sierre (Valais, Switzerland) and Chamonix-Mont-Blanc (Haute-Savoie, France):

1. Valorisation
2. Exploitation
3. Transformation.

When using the recommendations of Abdullaev (2006:4), local tourism managers in the Hokkaido area, Japan, geotourism:

- Related the geotourism strategy to other priorities in the destination, including planning, rural development, agriculture and environment
- Deliberately promoted and supported the projects maintaining local values and administered by residents
- Encouraged geotourism operators to be environmentally friendly, through training, advice and labelling
- Set up a mechanism for regular monitoring of tourism impact on economy, local community and environment
- Strengthened the links between gastronomy, local food production and agriculture by encouraging local products through training, publicity and special events, and
- Provided recreation and leisure venues for families.

In the "*Gauteng Strategy for Sustainable Development*":64) (GSSD), it is stated that the key to ensuring successful implementation of the GSSD will be to look for mechanisms that have a combination of the following characteristics:

- Firm legislative grounding
- Based on already established practice
- Based or contained in instruments or policies that are already periodically and frequently used, assessed or enforced
- Have proved successful in the past or provide potential as levers for policy implementation
- Have the potential to attract high level political commitment
- Provide opportunity for successful integration of various sectoral priorities.

Recently, sustainability has come to embrace the broader interplay between desirable economic, social and environmental outcomes especially in the "*South Australian Tourism Plan of 2003-2008*". This approach is commonly referred to as the triple bottom line. Even though they are inextricably related, these two terms are not the same. "*Sustainability is the advocacy for, and planning and development of, desirable inter-generational economic, social and environmental benefits and outcomes. The triple bottom line is about assessing performance in respect to these desired benefits and outcomes*". To successfully position a country as an inspiring leader in sustainable tourism, the state must be connected to global debate and initiatives in tourism sustainability and triple bottom line thinking, and must

thereafter apply innovative approaches locally. Thus, tourism must also be connected with the broader issues of sustainability in other sectors for example, natural resource management.

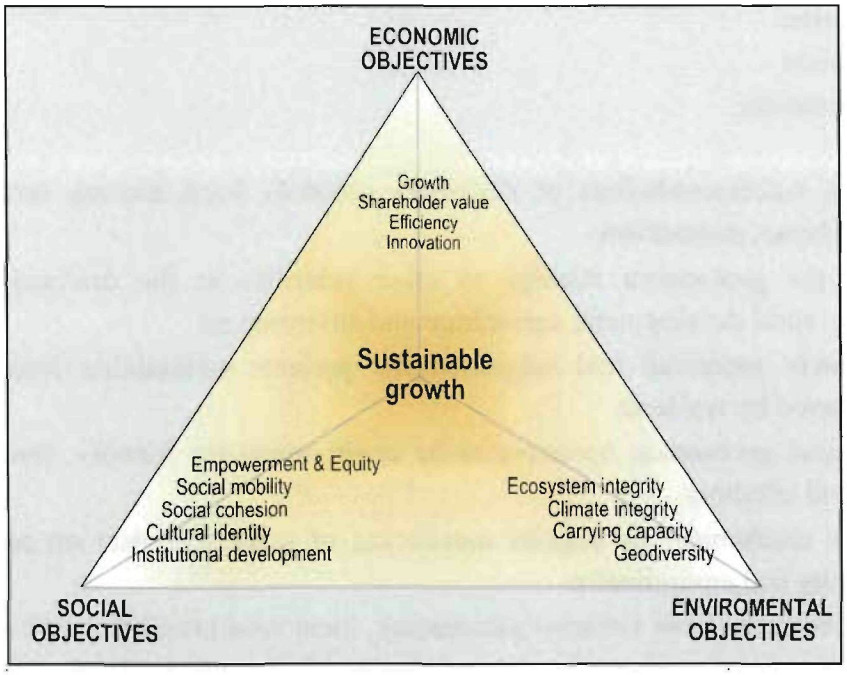


Figure 5.11: Sustainability and its relationship to the triple bottom line (TBL) (South Australian Tourism Plan 2003-2008:16, adapted by the researcher for geodiversity (http://server-au.imrworldwide.com/cgi-bin/b?cg=documentdownloads&ci=sa-corporate&tu=http://www.tourism.sa.gov.au/tourism/plan/TourismPlan2003_2008.pdf)

Although the South Australian Tourism Plan 2003-2008 was drawn up for sustainability and its relationship to the triple bottom line (TBL), it can be used also for geotourism in South Africa. This true in the case of geotourism, even though biodiversity must be replaced by geodiversity.

5.7.1 GEOTOURISM MANAGEMENT

Management forms part of the implementation process. Gebhard, Meyer and Roth (2007b:10-13) states that tourism management is an integrative approach aiming at minimising negative impacts of tourism while optimising profits for the local communities and their environment. It is meant to assess the impacts of existing and future tourism development and to monitor the impacts of tourism activities. Monitoring should be based on clear indicators, analysis of carrying capacity, limits of acceptable change and established mechanisms which are activated when the development is unfavourable. It is also a proactive approach to the regulation and the development of tourism in a specific region. It is based on a plan adopted by regional/local authorities and stakeholders.

The main dimensions of tourism management are:

- **Visions** are decisions that are made on the general perspective of the development of tourism in the region
- **Zoning** means that the given area is divided into clearly designated zones listing the types of tourism activities and infrastructure that would be acceptable and should be developed
- **Legislation and guidelines** provide for regulation of tourism activities and infrastructure/facilities according to the vision and the zoning established. Some of the rules may be set in form of laws, and others as voluntary guidelines or recommendations, for example, setting standards and/or criteria for tourism such as the environmental quality and land-use criteria in and around tourism sites, and the environmental and cultural sustainability guidelines for new and existing tourism development. Existing laws must be reviewed to resolve any inconsistencies between policy objectives and legislation
- The **approval, licensing and control** of tourism activities and infrastructure serve to implement the regulations. Various measures can be established, for example, the approval or licensing of new tourism infrastructure and tourism activities. Existing tourism facilities and activities must be monitored to ensure they comply with the regulations
- **Tourism development:** Within the tourism management, regulation and control are only one part. Stakeholders and authorities can also take an active part in tourism development by starting initiatives in tourism product development, marketing and improvement of services
- **Support of tourism development initiatives:** Tourism management can also support private-sector, tourism development initiatives by creating incentives, implementing assistance programs and establishing a network for the tourism sector. The proactive, positive approach of tourism development can often support or even replace the enforcement of regulations by creating best practices of tourism development and thus discourage or squeeze out of unfavourable activities
- The **use of economic instruments**, including tiered user fees, bonds, taxes or levies is part of the proactive approach of tourism management.

During a presentations delivered at the "*Workshop on Geoparks, Geological and Mining Conservation and Tourism in South Africa*", 22nd June 2007, at the Council for Geoscience in Pretoria, Schutte (2007:1-21) stressed that national and regional planning will lay the foundation for geotourism development in South Africa. It must establish policies, physical and institutional structures and standards for development to proceed in a logical manner. It should also provide the basis for continuous and effective management of geotourism that is so essential for the long-term success of geotourism. Geotourism attractions were primarily nature-based and responsible geotourism implies that communities should become actively involved in geotourism in their specific areas, practice sustainable development and ensure the safety and security of visitors. As geotourism would be an important source of revenue in South Africa, tourism stakeholders should seek to retain and increase visitor numbers by improving the general quality of the environment. Other aspects that should receive attention

would be visitor management and the visitor experience. The key to successful geotourism development lay in appropriate planning, development, management and marketing. As a first step, either individual or a group of geosites should be developed. In certain areas, geoparks could be developed. From an economic point of view, a geopark should only be established when there are enough geosites in an area. At the time the address was delivered, no geoparks existed in South Africa but could be established in the country in the future.

By using the findings of Edgell (2006:1-8, 104-105, 121-123) and Godfrey and Clarke (2000:13), properly managed tourism could be implemented in the case of geotourism. If geotourism were properly managed, it would have the potential to participate in, change, and improve the social cultural, economic, political and ecological dimensions of the lifestyles of the local peoples. One of the highest purposes of the policies and philosophies of geotourism must surely be to integrate the economic, political, cultural, intellectual and environmental benefits of geotourism for people, destinations and countries resulting in a higher quality of life for all. It is suggested that if sustainable tourism is properly managed, it could become a major vehicle for the realization of humankind's highest aspirations in the quest to achieve economic prosperity while maintaining social, cultural and environmental integrity. To manage sustainable geotourism relies on forward-looking policies and on sound management philosophies.

Sustainable geotourism must also include a harmonious relationship between local communities, the private sector and governments, in developmental practices that protect natural, built, and cultural environments in a manner compatible with economic growth. This could be achieved by sound partnerships through stakeholder involvement. The goal of sustainable geotourism should be to choose one or more approaches that foster practical, acceptable and profitable tourism enterprises while preventing damage to the built and natural environment. In the new millennium, many tourism leaders will see the management of sustainable geotourism as a mechanism that ties economic, environmental, and social issues together into a single management philosophy. If a geodestination is managed correctly, it can be better marketed and promoted. It becomes possible to find the right niche market that fits a sustainable geotourism product through database marketing, through e-commerce tools and through special web sites. The development, marketing and promotion of the sites should be managed through a strategic and sustainable geotourism plan. Therefore, the local community would be able to project itself as a very special place that tourists would want to visit, to return to and possibly even to retire to.

Another point is that tourism managers of sustainable geotourism development projects should seek to promote, establish and implement a strategy designed to ensure a balance between visitors, the host population and the environment, so as not to exceed the carrying capacity. In conclusion, Edgell (2006:123) states that "*Responsibly managed tourism enhance and enriches natural, heritage, and cultural values and embraces the need to conserve them so that the community and visitor have a quality tourism experience now and in the future*". Tourism is a business of both attracting and servicing of visitors. To remain successful, geotourism must not only be carefully planned and implemented, but also needs

to be managed. Thus, the strategic management of geosites, geo-attractions and geodestinations is of vital importance.

Many natural resources have had to become managed attractions to cope with the increasing number of people visiting them. Schutte (2006:67) believes that "*Because geotourism is a new tourism product, the geosites must be managed according to sound business principles. Attention will also be given to resource management, performance and the management of geosite attractions. Interpretation is a very important component of geotourism, that is, to explain in pictures how the rocks were formed. Maps of geosites and 'related aspects' such as locality, history, photos of geosites, interpretation and education posters for visitors, and present activities should be compiled - both at small scales for overview and presentation purposes, and at larger scales, for practical applications and discussions with the local regional key players. All the visual results should be presented in publications, oral and poster presentations*".

Godfrey and Clarke, (2000:13) believe that "*To remain successful, tourism must not only be carefully planned and implemented, but it also needs to be managed*". Therefore, the geosites, geo-attractions and geodestinations in South Africa should be managed according to sound, strategic business management principles. If this is done, then geotourism can be fully utilised for the benefit of scholars, students and tourists.

Major geotourism goals should be developed for the future. Specific objectives translate the mission statement into specific performance targets. Effective, management education in sustainable geotourism is needed so that tourism professionals are more aware of sustainable geotourism concerns and have an understanding of the means of turning good intentions regarding sustainability into good management practice. Geotourism development, policy, planning and marketing should all be included in ways to ensure that tourists, owners, host populations and investors reap the long-term benefits of a vibrant and healthy tourism industry.

Dallen, Boyd and Boyd (2005:131-193) give detailed accounts of managing heritage tourism and these could apply to geotourism as part of a geological heritage. They (2005:131) believe that: "*Heritage resources are irreplaceable: they are non-renewable resources that require conservation and good management. Heritage sites provide a tangible link between the past, the present and the future, and are often are subject to the conflicting aspirations of conservation and tourism. It is therefore essential that heritage sites are well managed*". When heritage management is well done, it is the key to conservation and commercial success, but when done badly, it means a significant part of heritage is lost forever. Management is the critical aspect of any heritage mission by managers and the primary mission should be the one of caring for the site and of maintaining it in as pristine a state as possible, while financial solvency and public access, as effects on the decision making processes, should be a secondary consideration.

Appendix 3 of the "*Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest*" (2004) at Strasbourg, France, states that

management of sites or areas of special geological interest must be appropriate to the scientific interest and physical nature of the area concerned. The management of geosites must also take account of biodiversity issues, while cultural considerations and effective management require certain basic levels of information and understanding regarding the nature, distribution and condition of geosites. Clear scientific understanding of the value of geosites or areas of interest is an important prerequisite to effective management.

The recommendation recognises that management of geological areas of interest within a national (and European) context will require the following:

- Recognition of the distribution and nature of this resource through development of national area (site) inventories
- Classification of area (site) types according to:
  - Scientific value (geological or geomorphological features and their scientific importance)
  - Physical characteristics (coastal, river valley, mountain, quarry, roadside exposure, etc.)
  - Specific management requirements of individual areas (sites).
- Development of indicators to identify threats and monitor degradation of geological heritage
- Implementation of site-condition monitoring programs based upon management requirements of specific area (site) types; these programs should be linked to existing biodiversity monitoring programmes where possible
- Creation of national/regional databases, to include inventory and monitoring information. Such databases are essential for management of areas (sites) and the dissemination of information relating to their scientific and educational value. Internet-based databases should be the standard, to ensure the maximum dissemination of information
- Linking national "areas *of special geological interest"* databases to:
  - Regional and local planning to ensure that planning authorities are aware of, and take into account, these special areas in creating/implementing plans
  - Biodiversity databases to ensure consistency of approach when managing natural heritage.

5.7.2 GEOTOURISM MARKETING

Marketing forms an integral part of the implementation process. Firth (2003) believes that marketing is an important component of the implementation of sustainable tourism principles and practices. The aim of marketing is to introduce, discuss and analyse sustainable tourism as applied to tourism and hospitality marketing. "*Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others*" (Kotler, Bowen, Makens, 2003:13, as cited by Firth, 2003). Marketing is concerned with determining consumer needs and preferences, creating appropriate products, providing useful information about products to consumers and

advertising their benefits. The knowledge and attitudes of stakeholders can have a major effect on the achievement of sustainable tourism objectives within individual businesses and within the broader tourism destination (http://www.besteducationnetwork.org/modules_marketing.php). All the marketing principles will be applied in the case of marketing of geotourism.

In the document "*National and regional planning. Methodologies and case studies*" (1994: 45-48) it is stated that marketing of tourism for a country or region is essential because it informs prospective tourists about what has the area to offer, and tries to induce them to visit it. This is also true in the case of geotourism. Marketing is part of the overall geotourism planning process as it relates to the geotourism product, and several activities are involved. These are:

- Establishing the marketing objectives
- Formulating the marketing strategy
- Preparing and implementing the promotion plan
- Providing tourist information services.

As was discussed under point 5.5 above people with high income and educational levels, and a high incidence of travel should be targeted. They will be similar to:

- 'Good citizens' who are older than 55 years of age because they show strong involvement in a variety of community activities, as well as heightened levels of cultural and environmental awareness and sensitivity, as manifested by behaviors in their local areas
- 'Urban sophisticates' who are more oriented to large city destinations and the cultural opportunities they provide
- 'Geo-savvys' who are distinguished by their above average interest in environmentally-oriented travel (c.f. 3.5.3).

Tourism must be marketed responsibly and must include both ethics and codes of practice. To go beyond the selling focus of the new labelling of tourism involves marketing that stresses the synergistic qualities between a tourist's interest and visit with the product's survival and enhancement. It is well known that marketing is about more than selling (Murphy, 1989:187). "*It,s in fact, a communications tool as expressed through its public relations function. It is now recognized as an important business component for the non-profit sector as well, assisting in its survival and development strategies*" (Kotler and Andreasen (1991), as cited in Murphy, 1989:187). "*Linking the various stakeholder groups together via marketing communications can help to sell the concept of sustainable tourism and its individual products through the element of education ... so sustainable tourism should strive to combine quality experiences with education. For some, such as ecotourists, it will mean detailed explanation and exposure to the site or activity. But these would be relatively few in number compared to those tourists who would be satisfied with a simple explanation and a 'staged' representation of the cultural or natural phenomenon. In either case the industry and governments have a responsibility to inform the tourists about their destinations and to enhance tourists' 'sense' of place through quality interpretation and carefully*

designed tours and facilities" (Murphy, 1989:187). This discussion by Murphy is especially relevant with regard to geotourism and could be applied with great success in South Africa.

Schutte (2000b:9) states that market segmentation is the underlying base for target marketing. The elements of the marketing mix consist of the following strategies: product, price, place and promotion (four P's). The marketing mix decisions will help implement the positioning strategy. In summary, the real objective is to combine marketing mix components to accomplish market objectives in a cost-effective manner. Geotourism market-analysis is a key step in the geotourism development process, and is vital if local destinations are to match their geotourism product (geotourism supply) with potential visitors (geotourism demand). Geotourism marketing is more than just 'selling' a destination. Each destination needs to work out its own and best approach to geomarketing to attract these preferred target markets. Linking the various stakeholder groups together via geomarketing communications can help to sell the concept of sustainable tourism and its individual products through the element of education. Thus, sustainable tourism should strive to combine quality experiences with education. At present, there are limited geotourism experiences in South Africa. The onus should be on the tour operator/travel agent to ensure the geotourism product-market fit.

Dallen, Boyd and Boyd (2003:185-193) describe the marketing of heritage tourism. It will be applied to geotourism as part of geoheritage. One of the main purposes of geotourism marketing should be to protect and conserve the past. Therefore, the marketing of geoheritage places does not necessarily attempt to increase visitor numbers. Thus, managers have the opportunity to target certain consumers and to control their visits while improving conservation standards at the same time.

Strategic marketing planning involves three primary elements:

1. Where is the product now?
2. Where should the product be in the future?
3. How should the product get there?

Schutte (2000b:7-9) believes that the marketing plan spells out the actions to be taken, who is responsible, what deadlines are to be met, and what sales are forecasted or budgeted. The Marketing plan also describes the marketing decisions and guides the implementation of those decisions, and the subsequent evaluation and management of the marketing strategy. Strategic marketing is the analysis, strategy development, selecting market target strategies for the product markets of interest to the organisation, setting marketing objectives, and developing, implementing, and managing the marketing programs and positioning strategies to meet the needs of customers in each market target. Strategies grow out of and reflect the environmental analysis, resource analysis and goal formulation steps. A target market describes individual buyer groups and their needs to be satisfied by making program-positioning strategies. Relationship strategies spell out relations to be developed with customers, other organisations and company personnel. Raymore (2005:17) believes that destination niche marketing as a sustainable tourism strategy is a responsible way to maximise the economic benefits of the travel and hospitality industry while simultaneously

enhancing and protecting the natural and built assets for generations to come. Traveller trends indicate that the demand for specialised experiences is increasing, while social trends indicate that travellers are more environmentally conscious than ever before.

Raymore (2006:17) reckons "... *in order for a Destination Management Organisation (DMO) of an environmentally sensitive destination to lead responsibly, the principles of sustainable tourism marketing and management must be fully integrated in the destination brand. The DMO must also take the lead in ensuring that all stakeholders have input and ownership of the brand. The DMO must also facilitate partnerships that will provide the specialized experiences expected by the targeted niche markets. Committing resources for on-going research is necessary to the long-term success of any marketing strategy. Additional research is needed for a sustainable tourism marketing strategy through partnerships with businesses, environmental agencies, governments and citizens if it is to be assured that the tourism marketing strategy is meeting the desired outcomes for the overall economic and environmental health of the destination*".
(www.doorcountychamber.org/Education/DestinationNicheMarketing.pdf)

Eagles, *et al.* (2002:21-22) believe that geotourism is a new emerging market segment in tourism. "*Protected areas are very attractive settings for the growing demand for outdoor, appreciative activities in natural environments*". Visitors have the opportunity to participate in desired activities but they must also be aware of and maintain the values thereof. Opportunities should be created to tap into such market demand to increase the attractiveness as a destination. Markets may comprise many segments, each of which has different somewhat different characteristics, expectations, activity participation and spending characteristics. Marketing exploits these visitor segments by comparing and matching them and then giving attributes to them. This segmentation reduces adverse impacts on the area, increases the economic benefits and makes it more likely that visitors are satisfied. The value of segmentation is that it can predict behaviour and help to plan for it. Ways to segment visitors are:

- Socio-demographic characteristics
- Geographic characteristics
- "*Physiographic*" segments
- Activity participation
- Frequency of participation
- Perceived product benefit.

Gray (2004:81) mentions that an increasing market for tourism is developing either separately or linked with ecotourism. The reasons for this development are:

- The general value of scenery, wilderness and environment, which is often promoted as part of national tourism programs. There is an increasing interest in touring and walking holidays and the general attraction of rural landscapes for day trips and short breaks by increasingly urban populations. This is addition to the worldwide popularity of beach visits and holidays

- There are specific geologic/geomorphologic wonders that are highly attractive to tourists. Examples include the Grand Canyon, Niagara Falls, Old Faithfull Geyser in Yellowstone National Park, the Norwegian fjords, Uluru/Ayers Rock in Australia, geothermal lakes in Iceland, and so on. The use of scenery in the film, *Lord of Rings* that was filmed in New Zealand stimulated tourism there. Other examples are the numerous "*Westerns*" that were made in the Monument Valley, Utah, and the attraction of tourists to the numerous waterfalls around the world. Aboitic features are able to attract at least as much tourism traffic as biotic ones, and the value of geotourism, as opposed to ecotourism, ought to be better understood
- There may be local geological activities that can be used to attract tourists (fossil hunting, lapidary, geotrails, museums and visitor centres). Voluntary environmental work sometimes brings the volunteers into contact with the geological world, for example, in the construction of footpaths and steps, the repair of dry stone walls, or creation of ponds and ditches. This, in turn, leads to greater awareness and appreciation of the character and properties of geomaterials and processes
- There are recreational activities such as skiing, caving, canyoning, glacier hiking, white-water rafting and climbing that requires specific landscapes or geological environments. Climbers, in particular, value the diversity of rock types and structures for the variety of challenges they bring.

5.7.2.1 Awareness and the importance of geotourism

An awareness campaign to emphasise the importance of geotourism as a new niche market in tourism is necessary. O'Halloran (1996:495) emphasises the importance of the awareness of resources: "*Visitors must be made aware of the fragile nature of the resources. Therefore, visitor ethics stressing the impact of low-impact use and interpretive services that provide educational opportunities concerning natural heritage sites are vital for sustainable tourism development*".

Gray (2004:341-345) describes a wide range of activities being employed to improve awareness of geology and geomorphology amongst the public:

- Museums:
  - Hall of the Planet Earth in the American Museum of Natural History
  - Royal Tyrell Museum, Drumheller, Alberta, Canada
  - Natural History Museum, London.
- Visitor centres:
  - Dynamic visitor centre, Edinburgh
  - Fuencaliente Vulcano Visitor Centre, La Palma, Canary Island
  - George C. Page Museum at the La Brea Tar Pits, Los Angeles.
- Theme parks:
  - Sand World Theme Park, Travemünde, Germany
  - Crystal Palace Geology Park, London
  - Glacier Garden, Lucerne, Switzerland.

- Disused mines:
  - Wieliczka salt mine, Poland
  - Great Orme Copper Mine, North Wales.
- Site interpretation boards
- Books, interpretation leaflets, maps, postcards
- Displays of fossil and mineral specimens
- Field guides
- Geological pedestrian trail that is self-guide or guide-led
- Expert-led 'hands-on geological activities' such as fossil or mineral collecting;
- Geological highway guide or road trails
- Geological train trails
- Audio-visual presentations that are shown at many visitor centres
- TV programs – "*Walking with dinosaurs*"
- Websites and CD-ROMs
- Links with industrial archaeology, landscape history, the arts and other fields
- Professional training and continuing professional development of tour guides and US National Parks officers
- Student training
- Community awareness programs
- State of the environment reports, community strategies, conservation charters; and
- Urban geology.

Brown (2004:2-4) believes that Scotland's new National Parks provide a great opportunity to raise public awareness of the value and interest of Scotland's earth heritage. A study was made to addresses the provision of earth heritage interpretation, specifically the Ice Age heritage, of the Loch Lomond and the Trossachs National Park. This National Park is an important area for outdoor recreation and environmental education.

Figure 5.12: An example of a geoscience activity. The 120 ton lava bomb was transported 30 km from a volcano to the town of Strohn, Vulkan Eifel Geopark, Germany. The researcher is in the background.

Figure 5.13: Children clad in miners' overalls inspecting mine equipment, Frisch Glück Visitor Mine, Schwäbian Alb Geopark, Germany

Figure 5.14: Interpretation tables at the Neptune stop, Planeten Lehrpfad (Planetary Learning Path), Marburg, Germany

Skridlaite, Uobyte, Stančikaite, Norkuniene and Gegžnas (2006: 55) say that for the majority of people a "*protected nature site*" is understandable and accepted without questioning but not for all the general public. Information is needed for the motivation of the protection, presentation of site's and area's vulnerability, temporality and the prediction of its future. By including geological sites and monuments into geological and nature trails and parks, the geoheritage can be protected. Therefore, it is of the utmost most importance is to raise public awareness about the protected site or area, about reasons of the protection, and the advantages of the sustainable development in general. Good quality geological information is a necessity. Therefore, the obtained results will provide the public with geological information and may help to understand the nature of geological processes, their influence on people's lives, and to make scientifically-based, future predictions. It will also help the design of information stands and arrangement of geo-trails and viewpoints in developing the tourism infrastructure.

Presbury and Edwards (2003) designed a module that was intended as a supplement to be used in existing courses and training programs in hospitality and tourism management. The purpose was to generate an awareness of sustainable tourism principles and practices that could be applied to the management of festivals, meetings and events (FM&E). The assumption of this module was that participants would be in the process of attaining knowledge and skills in the general aspects of FM&E under the tutelage of an instructor using a generic textbook or training manual. The module was constructed in a manner that focused solely on those activities that would pertain to a FM&E practitioner positioned within a Sustainable-based Tourism Organisation (STO). Instructors could infuse sustainable practices into a management course or training program using the module in a variety of ways. Two approaches are possible, either:

1. Allocate a small portion of class time for the coverage of each of the modules that are consistent with the topic of instruction, or
2. Use the entire module as a case study to provide learners with exposure to the unique FM&E challenges associated with the establishment and maintenance of a sustainable hospitality/tourism activity.

(http://www.besteducationnetwork.org/modules_festivals.php)

In conclusion, it can be stated that public lectures could also contribute towards increasing awareness of the geo-product and it is imperative to promote Earth Science to the public at large, as well as to tourists. Providing tourists with information is a common activity in tourism at visitor information centres, museums, and through visitor education programmes. This process of informing or educating visitors can be referred to as interpretation. There is a close relationship between interpretation and tourism, and many tourist activities are focused on interpretation. Information signs, information centres and a staff of well-trained tourist guides are all essential. Local geosite description is very important for geosites at Golden Gate, Kimberley mine, Gold Reef City and Pilgrim's Rest where the geological and mining history can be explained on site.

Figure 5.15: Water wheels made during the Roman mining period, Deutsches Vulkan-Museum, Mendig, Germany

Figure 5.16: Books explaining geology and a map to interpret the Earth, Infozentrum Raushermühle (information centre Raushermühle), Plaidt, Germany

Figure 5.17: The AlbGold train that takes tourists on a geo-excursion on Sundays in the Schwäbian Alb Geopark, Germany

5.8 EVALUATION AND MONITORING

Thompson and Strickland (1995:14) state that "*A company's mission, objectives, strategy, and approach to implementation are never final; evaluating performance, reviewing changes in the surrounding environment, and making adjustments are normal and necessary parts of the strategic management process*".

De Bruyn and Klopper (2005:158-160) believe that the strategic control process has three basic elements, all of which are essential for maintaining effective strategic control:

- Company objectives
- Performance evaluation
- Feedback (or corrective action).

Company or organisation objectives

The primary aim of strategic management is to position and guide the organisation effectively within a changing environment. Because the tourism environment is experiencing rapid change, a process for controlling and evaluating strategy execution is essential if the strategy is to be successfully implemented and adjusted to the changing conditions. Therefore, the management team must measure the performance against the set objectives and thereafter, initiate actions to both reinforce success and take corrective action. Quantitative criteria should be established for all the organisation's key objectives, that is, those that are essential for the survival and success of the organisation. Most organisations establish quantitative criteria for evaluation on factors such as:

- Dividend payments
- Earnings per share
- Employee turnover, absenteeism, tardiness and grievances
- Growth in sales
- Market share
- Net profit
- Profit-sales ratios
- Return on investment.

Evaluating organisational performance

Performance evaluation is often viewed as being synonymous with control when it is only a part of the total control process. The principal purpose of performance evaluation is to identify problem areas in an organisation. Evaluating performance requires a comparison between the actual performance and the planned performance, that is, a comparison between the output from the control systems and the organisation's desired objectives. When performance in a business is evaluated, it is useful to evaluate not only the performance against objectives, but also to compare the business with its competitors.

Feedback or corrective action

The output from the strategic control process influences all other phases of the strategic management process. However, poor performance may be due to negligence on the part of certain managers; in which case, those managers must be either retrained or replaced. The output from the control phase of strategy implementation also provides information that is essential to the objective-setting process. The first question to be asked in the objective-setting process is "*Where is the organisation now?*" To answer this question, properly designed control systems will provide valuable information. The complete strategic management process is a feedback system that requires constant adjustment based on information from the control system and the organisational environment.

Eagles *et al.* (2002:42) illustrate that evaluation is about where the organisation is situated currently and is it getting where it wants to go. It forms part of a management planning system that is diagrammed in Figure 5.16.

Dwyer and Edwards (2003) say that in evaluating and monitoring tourism plans, the following are important:

- Evaluate performance in achieving sustainable practice in tourism planning
- Address future challenges/issues associated with how tourism planning can contribute to the achievement of sustainable tourism.

The Wyre Forest Project Audience Development Plan (www.forestry.gov.uk/pdf/wyre-adp-report.pdf/$FILE/wyre-adp-report.pdf: 2006:66-67) describes how monitoring and evaluation can be applied. In a development programme, it is always necessary to know what progress is being made and whether the programme is making a difference to those who need it, and whether the programme is achieving its stated aims and objectives. The process used to achieve this is regular, ongoing monitoring and periodic evaluation. A successfully monitored and evaluated program can be useful for informing good practice and can help other similar projects to run more smoothly.

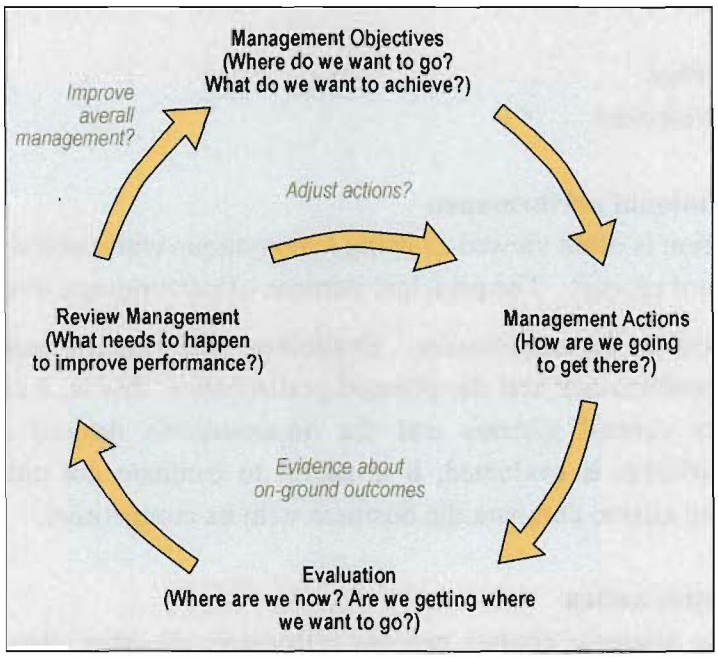


Figure 5.18: Evaluation as part of a management planning system (Eagles *et al.* 2002:42).

Any plan needs to consider how best it might monitor and evaluate its activities so that it can be informed of progress and can record what has-been successful in order to amend or adjust activities as they progress, and so inform future working and good practice. Essentially, a monitoring and evaluation process seeks answers to the following:

- Are activities being undertaken as planned?
- Are resources being used efficiently and effectively?
- What are the effects and impacts?
- Are the activities and objectives still relevant?

There is a basic series of steps that need to be followed in order to carry out this monitoring and evaluation (M&E) process:

1. Identify stakeholders in the M&E process.
2. Obtain everyone's agreement and active willingness to establish program M&E.
3. Establish objectives for the M&E process.
4. Decide on a timeframe.
5. Identify information needs.
6. Identify appropriate techniques, especially for monitoring.
7. Assess required resources.
8. Make any pre-establishment preparations for example, awareness-raising.
9. Collect information for and produce baseline.
10. Review success of information-gathering techniques and of the baseline task.
11. Begin regular monitoring.
12. Review how the monitoring data is being used.
13. Adjust program activities in the light of monitoring data.
14. Adapt monitoring techniques as necessary.
15. Establish terms of reference for evaluation.
16. Choose lead people to manage and facilitate the evaluation.
17. Decide on timeframe and techniques for evaluation.
18. Do the evaluation.
19. Feedback to all participants.
20. Adjust program activities and objectives.
21. Keep on monitoring, and
22. Keep on evaluating.

When evaluating and monitoring tourism plans, Dwyer *et al.* (2005:8) recommend the following:

- Evaluate performance in achieving sustainable practice in tourism planning
- Address future challenges/issues associated with how tourism planning can contribute to the achievement of sustainable tourism.

(http://www.besteducationnetwork.org/modules_planning.php)

Mieczkowsky (1995:40) is of the opinion that the purpose of monitoring is to scrutinise how the plan is working in practice, to provide the necessary feedback and modifications of the original plan. Thus, monitoring and change must constantly take place in geotourism. Monitoring geotourism development is essential to managing impacts. Geotourism is a business of both attracting and servicing visitors. A prerequisite for achieving sustainable geotourism management is that the products should be managed through an integrated process, and that all stakeholders should be consulted in the management process.

5.9 EXAMPLE OF DEVELOPING A TOURISM PRODUCT

Gebhard, Meyer and Roth (2007a) and Gebhard, Meyer and Roth (2007b) developed a sustainable tourism management plan for biosphere reserves (BR) as a methodology guide in

Eastern Europe. This is given as an example of how to develop a tourism product for it is believed that this methodology can be successfully applied to geotourism in South Africa. In the development of tourism management planning for biosphere reserves the authors quoted (2007b:5, 8-10) note that ecotourism provides opportunities as well as challenges for the sustainable use of biodiversity. Sustainable investments in the ecotourism sector could produce benefits to communities. These could be achieved through the development of new and innovative management systems with a special focus on the tourism-related uses of the sites. Awareness raising and capacity building systems should be developed and implemented to ensure long-term sustainable impacts. This guide could be used as a helpful tool in developing a tourism management plan, as well as its subsequent implementation in a protected area.

Broadly, the guide consists of eight steps, and includes information regarding why tourism management plans should be developed, the procedure for plan development, guidance on stakeholder involvement, review and monitoring, and a detailed template for a tourism management plan in biosphere reserves.

It is summarised by Gebhard *et al.* (2007b:8, 10) as follows; "*In order to minimize possible threats of tourism on natural and cultural resources and to maximize the benefits of tourism, tourism development needs to be planned and monitored carefully. Management planning techniques and the organization of control measures and monitoring mechanisms are of vital importance for those individuals in Biosphere Reserves who are responsible for the tourism management planning. The main challenges of tourism management planning are the development of adaptive management strategies and getting the stakeholders prepared and involved in a participatory planning process...The integrative approach of Biosphere Reserves welcomes the establishment of sustainable tourism development, which on one hand offers opportunities to use natural resources where possible and on the other hand helps to conserve natural values where necessary*".

However, the methodology can be applied to all forms of tourism in any geographical region. The guidelines were established recognising the fact that sustainable tourism development is only possible through careful and detailed tourism management planning. This should involve key stakeholders in tourism, conservation, economy and politics in a region and should be completed in a participatory process that must include the local population.

Gebhard *et al.* (2007b:14) describe the management planning process as a logical process divided into different, consecutive stages. They explain all the stages and describe why they are needed, how they can be accomplished and what their problems and pitfalls could be.
The eight steps are:

1. Getting started clarifies the background of the planning process and also how "*the team*" should be assembled.
2. Identifying the key stakeholders who will participate in the planning process and establishes their working arrangements.

3. Compiling the baseline information needed to make decisions about the prospective tourism development.
4. Developing a basis for the development of the biosphere reserve's tourism management vision.
5. Agree upon and the main goals and objectives produce a work plan stating how these goals and objectives will be achieved.
6. Impact management strategies should be elaborated to make sure that the tourism management plan will monitor and manage potential impacts carefully.
7. A feedback and review process needs to be designed to find out whether the goals of the management plan are being fulfilled and whether the stakeholders are being involved appropriately, and
8. Approval of the plan.

5.9.1 THE TOURISM MANAGEMENT PLAN

Gebhard *et al.* (2007b:14) state that the first step is the tourism management plan and this must be a written, approved document, which should describe the possible threats and opportunities of tourism development. It produces a vision for tourism development based on detailed information about the environmental, social, cultural, political and legal aspects. The vision covers a certain period of time, which should be stated in the document, and describes the work that has to be completed to make the vision a reality. It also establishes the control measures to monitor tourism activities later.

Planning is important because preparation for developing a tourism management plan is critical and the more time allocated to developing it, the better. It is especially challenging because the involvement of many different stakeholders in the planning process is crucial if the plan is to be successfully adopted and implemented. They may have different, sometimes conflicting interests and may have different attitudes towards conservation and tourism. The vision created through the tourism management plan should be recognised, understood and supported by all the relevant stakeholders, preferably through consensus.

Gebhard *et al.* (2007b:14) summarises the benefits of a tourism management plan as follows:

- It is a tool which helps to achieve results more efficiently and in a more cost effective way
- It shows work priorities and highlights the worst problems caused by tourism development and ways to solve these problems
- It clearly identifies what needs to be done and who is responsible for carrying out the tasks identified
- It helps to plan the tasks which should be completed by protected area managers, local authorities and tourism operators
- It ensures continuous and consistent tourism management and informs future managers of what has been done, as well as why, when and how it was done

- It communicates the goals of sustainable tourism management to all relevant stakeholders and to a wider public right from the beginning of the planning process. This assures their support and involvement in the process and can in turn help to identify possible conflicts at an early stage
- It explains regulations, restrictions and control measures to people visiting the Biosphere Reserve as well as to individuals offering tourism facilities
- It defines and supports the model role of the Biosphere Reserve in national and international sustainable development strategies.

In the logical process of management planning, it has to be considered that the tourism management plan serves as a guiding document for all people affected by tourism development in the region. Therefore, it must be applicable and easy to understand for all the different kinds of stakeholders. It should be the product of a participative and consultative process that involves all those interested in or affected by tourism, that is, the stakeholders. Once written and approved, the plan can be used by many different stakeholders, such as:

- Management bodies of a National Park
- NGOs involved in conservation and tourism in the area
- Tour operators and individuals who provide tourism facilities
- Local communities, administrators and politicians
- Resource managers (water, energy, land, etc.)
- Scientists and experts in different disciplines.

A tourism management plan should be as short as possible without losing its coherence, credibility or practical use. The timescale can be divided into three stages:

1. Operational planning (short term)
2. Tactical planning (medium term), and
3. Strategic planning (long term)

Another point is that the tourism management plan should be coherent with other existing regional plans relevant to tourism development.

The Sustainable Tourism Destination Planning and Development Laboratory of Blackstone Valley, Rhode Island, USA (www.sustainabletourismlab.com/) believes that sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destinations, including mass tourism and the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability (WTO 2005). They point out that:

- The paradigm for tourism in the 21st century is shifting as sustainable planning principles emerge
- That stakeholders must protect and prepare their communities for the future and for changing visitor expectations

- That stakeholders should attend, learn, build and implement a comprehensive sustainable tourism plan for the community or region.

5.10 CONCLUSION

The theory of strategic management was discussed. Various references by well-known authors were consulted to get an overview of the strategic management process. In the development of a strategic management plan, the role of strategic planning was examined. Gebhard, Meyer and Roth (2007b:1-66) developed a sustainable tourism management plan as a methodology guide for biosphere reserves (BR) in Eastern Europe. This is a very practical document compiled by experts based on practical experience. The guide was used as a basis to develop a geotourism management plan. Aspects that were incorporated include why geotourism management plans should be developed, the procedure for plan development, guidance on stakeholder involvement, review and monitoring, and a detailed template for a geotourism management plan in protected areas.

The conceptual framework for a strategic management plan of Schutte (2007) was amended, and used as a basis for the sustainable development of geotourism. Strategic planning and the tourism management planning process were added as the first steps. These are followed by normal steps used by most authors: 1) Vision and mission, 2) Situation and resource analysis, 3) Strategy formulation, 4) implementation, and 5) Evaluation (See Figure 5.1: A conceptual framework for a strategic management plan).

It was shown that the strategic planning was just the first step. The tourism management planning process is challenging because of the involvement of many different stakeholders. Their involvement is crucial if the plan is to be successfully adopted and implemented, as described by Vollmer and Megerle (2004).

In the tourism management planning process, Vollmer and Megerle (2004) showed that in Germany stakeholder involvement is crucial for successful partnerships by the process of networking where persons from different disciplines are linked together, but keep their independence, to create a "win-win" situation. Innovation, high-quality standards and sustainability guidelines show that a network really performs very effectively and can be seen as a successful model to develop and promote high-quality, sustainable geotourism. A bottom-up, starter project and subsequent promoter strategies are crucial.

The vision and mission for a geotourism product should be proactive to give guidance in terms of where it is need to be, and also who is involved, what the stakeholders do and where the project is headed. The mission statement set the course for future geotourism development.

The importance of a situation and resource analysis was emphasised because it will help tourism managers to identify key internal and external variables, as well as potential business opportunities. The development of a situation analysis is very important for regional tourism

as it provides the strengths, weaknesses, opportunities and threats of and to the organisation or product. The environmental, social and economic analysis of geotourism was described.

Three Heritage Legislation Acts (No's 11, 25, 49 of 1999) in South Africa have been promulgated to date. Although South Africa has an abundance of world-known natural resources, only the identification of cultural heritage resources is emphasised by Act 25. Natural heritage is merely mentioned and neither geology and geoconservation, have any real significance. For this reason, a completely new Act concerning the conservation of the natural heritage should be formulated in the future.

The strategy formulation process was described in detail. Strategy is the way an organisation seeks to achieve its vision and mission. It also describes a course of action that includes the specification of planned resources required, that are needed to achieve a specific objective and enables the organisation to deploy its capabilities.

In the implementation of strategic management, it was discussed how the action phase of the strategic strategy can best be implemented. The implementation of strategic plans deals with making strategic choices that are concerned with the generation and evaluation of various strategic options and the selection of a proper strategic strategy.

The carrying out of the plan's policy and recommendations was discussed in the implementation of a geotourism strategy. Management of geotourism is a crucial factor as the geosites must be managed according to sound business principles. Strategic marketing and promotion and an awareness campaign emphasised the importance of geology.

A geotourism strategic management plan is not complete unless evaluating and monitoring of progress has been done. In evaluating and monitoring tourism plans, it was shown how to evaluate performance by all stakeholders when achieving sustainable practice in tourism planning to the addressing of future challenges and issues associated with geotourism can be addressed, and how geotourism can contribute to the achievement of sustainable tourism.

An example of developing a tourism product was given from a case study in Europe concerning Biosphere Reserves.

CHAPTER 6
RESULTS OF THE CASE STUDIES

6.1 INTRODUCTION

Six case studies were chosen for the research project. These are as follows:

1. The Kruger National Park (KNP) was chosen as an example of a National Park. The KNP is the largest and most renowned park in South Africa managed by South African National Parks. The Park represents one of the outstanding examples of a National Park, famed world-wide, and it is justly described as the flagship of the South African National Parks. It is an important tourism destination for many visitors and offers a unique nature experience because of its rich wildlife and good infrastructure.

2. Pilgrim's Rest was chosen as an example of a conserved, gold-mining, heritage town and also because the old reduction works are currently being investigated for inclusion as a UNESCO World Heritage Industrial Site, a first in Africa. The date of submission was the 15 May 2004 under criteria (ii) and (iv) as a cultural category (http://whc.unesco.org/en/tentativelists/1075).

3. The Kromdraai Visitor Gold Mine was chosen as an example of a visitor mine; one of the first gold mines discovered in the Transvaal, even before the discovery of the Witwatersrand Goldfield in 1886. This will give an unparalleled view of historic gold mining methods.

4. Kimberley was chosen as a well-established diamond tourism centre, and because there is still small-scale diamond mining. South Africa has long been one of the leading diamond-producing countries in the world. According to Lynn, Wipplinger and Wilson (1998: 232-258), the biggest producing diamond mines are in Kimberley, Cullinan, Venetia, Alexander Bay and Kleinzee, while smaller producers are mainly found at the alluvial diggings in the North-West and North Cape Provinces. The country is well-known for its diamond deposits and mining, and lately for its cutting, polishing, jewellery design, manufacturing, and the role of diamonds in the county's economy. Diamond cutting and jewellery manufacture always fascinates and attracts visitors.

5. The Cradle of Humankind (COH) World Heritage Site (WHS) was chosen as a palaeo-anthropological area of immense significance. There are two newly established and excellent exhibitions, 1) Sterkfontein Caves and visitor centre, and 2) Maropeng, the official visitor centre for the Cradle of Humankind WHS, housed in and around the Tumulus Building. Maropeng is the official visitor centre for the

COH, and is responsible for the running of Sterkfontein Caves, one of thirteen sites in the COH area. They are registered as "*Maropeng a'Afrika Leisure (Pty) Ltd*". The first of its kind in the world, the Tumulus is designed to look like an ancient burial mound from the front and, when exiting on the far side, a very modern structure from the rear. The architecture aims to symbolise the journey through time from mankind's ancient origins to today. The site provides all that visitors can hope for at Maropeng: a 4-star boutique hotel, restaurants and an excellent conference venue. It is ideal for conferences, with three venues in the Tumulus building offering a combined seating capacity of up to 500 delegates. There is also a 5 000-seater outdoor amphitheatre and a 150m^2 temporary exhibition space within the Tumulus itself.

6. The Geoscience museum in the building of the Transvaal Museum, Pretoria, was chosen as an example of a museum collection.

During interviews with the respondents, Internet results about the places or products were discussed with the respondents to verify facts. Some of the answers of the respondents regarding a specific place or area were more comprehensive that were those of their colleagues. Additional information was obtained from the respondents that were not in the questionnaire, this applies to both the KNP and Pilgrim's Rest. The responses were grouped together to be more user friendly. The finished analysis was then integrated in the results.

Because in four case studies, geotourism products are situated in protected places the guidelines, mainly directed at biodiversity, that were laid down by Foxley (2007: 44-70) are directly applicable to geotourism in South Africa. Each place needs its own plan that will describe how geotourism and visitor activities should be managed. Critical factors to be considered when trying to understand planning for tourism in protected areas include social, political and economic trends forming the background context for planning. It is important to develop plans for tourism detailing the specific goals and objectives mandated for the area in its founding legislation, and further to describe the objectives for tourism development.

6.2 RESULTS FROM THE CASE STUDIES

The results from the interviews for the six case studies are given below.

6.2.1 CASE STUDY 1 – KRUGER NATIONAL PARK (KNP) - INTERVIEW RESULTS

A personal interview using a questionnaire was undertaken with Dr. Peter Novellie, General Manager Park Planning, on the 10th October 2008, and with Mr. Joep Stevens, General Manager of Tourism Operations, on the 16th October 2008 at the Head Office of the South African National Parks (SANParks), Groenkloof, Pretoria.

6.2.1.1 Background and history

The Kruger National Park (KNP) covers an area of 1 948 528 hectare and is 350 km long from north to south, with an average width of 64 km. It is in the north-eastern part of the country, and borders both Mozambique and Zimbabwe.

In 1898, Paul Kruger, the president of the Transvaal Republic, created the Sabie Game Reserve in order to control hunting and protect the diminished number of animals in the park. The reserve was located in the southern third of the modern park. Shingwedzi Reserve was proclaimed in 1903. In 1926, Sabie Game Reserve, the adjacent Shingwedzi Game Reserve and farms were combined to create the KNP, which was opened to public visitors in 1927. In 2002, the KNP, Gona-re-Zhou National Park in Zimbabwe, and Limpopo National Park in Mozambique were incorporated into the Great Limpopo Transfrontier Park. The Kruger National Park is managed by the South African National Parks (SANParks). It is an outstanding example of the world's biggest and best-known National Park and is the flagship of SANParks. As a world-renown ecotourism destination, it offers a unique nature experience with the most game species of any park in Africa.

❖ **GEODIVERSITY, GEOLOGICAL SIGNIFICANCE**

The geoheritage of the park consists of a diverse assembly of igneous, sedimentary, and metamorphic rocks together with unconsolidated sediments, which cover a time span of more than 3.5 billion years. There is a close relationship between the underlying geology, soils, vegetation and ecosystems that is neither emphasised nor well-enough publicised.

❖ **GEOCONSERVATION**

Because the geosites, fauna and flora are part of the natural assets of the Park, they are being protected in the Park.

❖ **OTHER, SUPPLEMENTARY, TOURISM PRODUCTS**

Picnic spots, the Goldfields Environmental Centre and museum (with an elephant hall and rhino exhibition) are facilities available, while the Thulamela, Masorini and the Albasini ruins are prominent archaeological sites. Activities in the Park include game drives (Big Five), stargazing evenings, bush braais (barbeques), bush walks, mountain biking and the Lebombo Overland ecotrail (used by 4x4 vehicles), wilderness- and backpack-trails.

6.2.1.2 Present status

❖ **RESOURCE ANALYSES**

The KNP is well endowed with spectacular geophenomena. The geosites project was completed to document geosites in the park.

❖ HOW SUSTAINABLE GEOTOURISM IS BEING IMPLEMENTED

A printed definition of sustainability was given to every respondent before the interview, either by e-mail or personally. During the interviews, it became clear that sustainability was a concept that was not well understood. The respondents did not answer the query.

❖ SWOT ANALYSIS:

During the personal interviews with Dr. Peter Novellie and Mr. Joep Stevens (both of SANParks), very valuable information was obtained. The SWOT-analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative when forming an overview of key issues in the Park. Not every person gave the same answers; thus their responses were grouped together, and subsequently integrated in the results below.

- **STRENGTHS**

  The strengths that were identified are:
  - The Park is a world-class, nature based, tourism destination
  - It is world renowned for the quality of scientific research
  - The staff are world leaders in biodiversity conservation management
  - A good infrastructure exists throughout the Park
  - A sound planning for Park management exists
  - The management is reputable
  - There is a strong domestic market for tourism in the Park
  - A well-established tourism market exists
  - The Park has a world renowned icon and name
  - An excellent website is available
  - The Park has a rich biodiversity
  - The Park has a large variety of geophenomena
  - At present, the Park is part of the Great Limpopo Transfrontier Park (GLTP) together with Mozambique and Zimbabwe
  - Alien species are being removed and attention is given to riverbed quality in terms of the preservation of the environment.

- **WEAKNESSES**

  The weaknesses that were identified are:
  - There is a lack of funding
  - So far, only a mainly biological, world-class, tourism experience is offered
  - There is a specific lack of funding from the provincial government to complete the complementary project of the Kruger-Malelane-Junction
  - The construction of holiday homes on the southern banks of the Crocodile River outside the Park is contradictory to the purposes of the Park
  - Problems with obtaining funding from a local company in Malelane for the publication of the Park guide

- There is nothing about soils or geology on the park's website.

- **OPPORTUNITIES**

The opportunities that were identified are:

- The establishment of world-class, interpretation centres in all the camps
- The extension of activities in the Park
- Inclusion of information about geology and soils on the Park's website
- There is a potential to develop a vision that all stakeholders can support
- There is a potential for further appropriate development with many assets/attractions as a basis
- Examination of the possibility of attracting international funding for development of the area
- There is scope for the sustainable development in an holistic, integrated planning and management manner
- A potential exists for socio-economic development, job creation and training
- The potential exists to demonstrate the benefits of implementing good environmental management and development policies arising from biodiversity conservation
- The diversification of economic activity in the area
- Integration of the geotourism product into a greater regional, provincial and even countrywide strategy as a specialised niche market
- A KNP commitment and support exists for the geotourism initiative
- Local enthusiasm and support for the geotourism concept exists
- There is support from the scientific community in the KNP and in South Africa
- The area is large enough to plan and manage geosites intensively
- Undertake educational development and enhancement of geotourism
- Establishment of a close working relationship between scientists, managers, rangers and staff to understand intricate socio-ecological systems
- By increasing the KNP Ecosystem Area by SANParks to embrace the Transfrontier Conservation Area philosophy where considerable resources are available for this purpose
- The removal of fencing on the KNP border with Mozambique (about 370 km), as well as on approximately 60% of the western boundary of KNP, adjacent to the existing private nature reserves.

- **THREATS**

The constraints and threats that were identified are:

- Land claims and restitution resulting in possibly fragmented land ownership
- Crime in the camps and at the entrance gates
- Lack of codes of conduct for tour operators, businesses and visitors
- Growing human populations and the needs for resources accelerate
- There are impoverished communities on the periphery of the park with huge

unemployment ratios

- Social pressures to provide natural Park resources to local communities
- Increasing political demands on the resources of the Park
- Poorly planned and rapid expansion of ecotourism, private concessions, holiday homes and private game viewing lodges adjacent to Park
- A significant emerging issue is the construction of holiday homes on the boundary of, or inside, protected lands
- Rising cost of fuel and food leading to a general increase in the running expenses of the Park
- World and local economic downturn
- If ecotourism development is permitted to occur in all claimed areas at the same level as currently occurring in the Makuleke area, it may severely impact the KNP
- Increasing political demands to fund conservation from tourism revenues places considerable pressure on conservation organisations to expand tourism facilities and products that, in turn, could lead to over-use of the resources
- Possible economic failure of the concessions because the price for accommodation in these areas is too high
- The Parks personnel can only visit the concession areas only a Wednesday, and that with prior permission, rendering quality control difficult
- Poaching of wildlife
- Trafficking of vehicles and goods on the main roads.

6.2.1.3 Lessons learned

The respondents were unaware of geotourism, and the concept had to be explained to them. No strategic management plan for geosites exists, yet planning, management and marketing should be based on that strategic plan. The Park urgently needs more funding from the government. A further point is that the government focuses too closely on job creation and poverty relief, with the result that there is little available for conservation. Sometimes the World Organisations allocate funds for conservation projects. So far, the only financial support for this particular study came from the KNP itself in the form of free accommodation during the documentation of the geosites. No geoconservation legislation exists.

6.2.1.4 Implementation of sustainability

Overseas research into experience in geotourism development should be undertaken. It is important to ensure that all decisions and proposals be made within a broad biophysical and socio-economic context with the explicit objective of ensuring environmental sustainability. To incorporate environmental sustainability issues into the geosites project, all other departments of the KNP should also consider sustainability issues.

Suggested sustainability objectives for the KNP include:

- Meeting both present and future needs
- Maintaining the productive capacity of natural resources and systems; and
- Maintaining a balance between human needs and the needs of the ecosystem in order to maintain the productive capacity. (This acknowledges that there are limits and requirements for balance).

A better awareness and knowledge of geotourism is a necessity. A well-prepared management strategy is necessary to implement geotourism.

Eber, MacFadyen and Venter (2007:1-38) classified the KNP in 2006 into five zones:

1. **Wilderness**
2. **Remote**
3. **Primitive**
   - Primitive Area (not concession)
   - Primitive - management
   - Primitive - camp
   - Primitive Area – Concession.
4. **Low intensity leisure**
   - Low – area
   - Low - gate
   - Low - transport
   - Low – camp.
5. **Remote**
   - Medium - camp
   - High - transport
   - High – camp.

The zones in the Park Management Plan of 2006 are more extensive, and are shown in Figure 6.1 (www.sanparks.org/conservation/park_man/kruger.pdf) and it was described in more detail by Eber, MacFadyen and Venter in 2007 (http://www.parks-sa.co.za/parks/kruger/conservation/scientific/noticeboard/science_network_meeting_2007/Tuesday/eber.pdf: 1-38). Concession-primitive and low-intensity leisure zones were added. Although the geosites occur in all the zones, mainly along the tourist roads, they can mostly be seen during travel to a destination.

A starting point for the sustainable development of geotourism in the Park would be to educate the tourists more about the environment, especially geology, geodiversity, geoheritage, the interpretation of geology and the geological processes. A suggestion was made to obtain funds from Foskor and PMC at or near the Phalaborwa Gate. However, a display in a new building near the gate would be a better option than that of using the Bollanato centre in town. Discussions are currently underway to involve mining companies in the Phalaborwa area as stakeholders. An interpretation centre is envisaged at or near the main entrance gate. This will enhance networking in the area. Geosites are to be protected

like the fauna and flora in the Park. Promotion of their protection will be done by lectures, slide shows, audio-visual presentations, printed brochures and through material on the website.

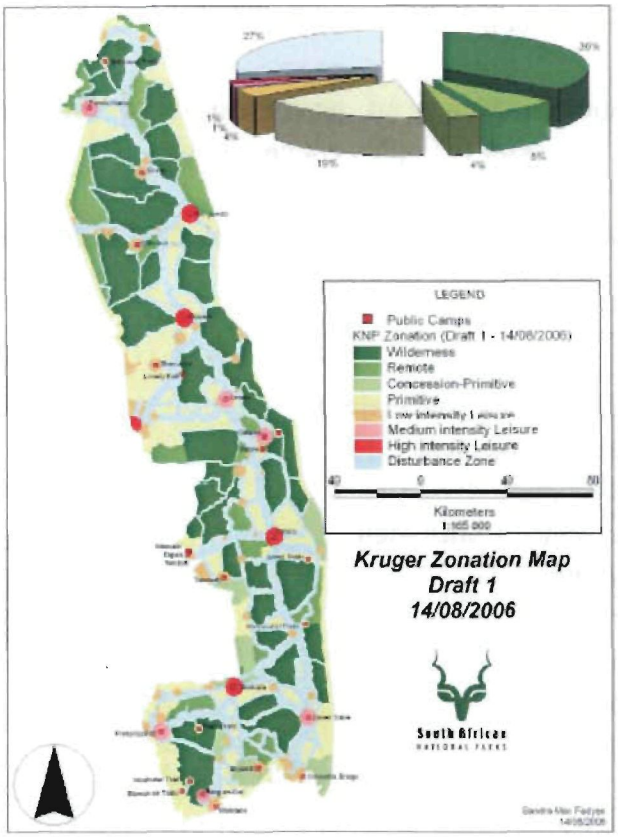


Figure 6.1: Kruger zonation map (provisional 1st draft August 2006) (www.sanparks.org/conservation/park_man/kruger.pdf:30)

❖ **MANAGEMENT OF GEOSITES**

Schutte and Booysen (2008:31, 41) state that the main objective of KNP management is to maintain the ecosystem in its natural state for the enjoyment and enrichment of visitors. The focus is mainly based on ecosystem management, administration and tourism. At present, the main emphasis of the Park's management plan is on biodiversity. Although geology is the basis of everything, it is not yet being emphasised sufficiently.

6.2.1.5 Benefits

❖ **CONSERVING NATURAL HERITAGE**

Because geology forms the basis for the soils, vegetation and ecozones it must be integrated into the curriculum of the future training of guides and game rangers.

❖ CREATE OPPORTUNITIES TO WORK WITH OTHER TOURISM SECTORS

Opportunities to work with other tourism sectors should be created and explored in the future.

❖ ENHANCING VISITOR EXPERIENCE

To enhance the geotourism experience, geo-education for the public, tourists, scholars and students should be undertaken. Stargazing will be integrated into the geotourism experience at Olifants Camp. Because of the solar eclipse on 4 December 2002 over the KNP, more camping places were made available for local and overseas visitors in the various northern camps of the Park. Thus, the Park obtained considerably more revenue than expected. The total solar eclipse could be observed over Punda Maria and Shingwedzi, and drew much international attention. This was an event that occurs only once in a lifetime.

❖ GEO-EDUCATION

According to the respondents, geotourism can be used for education and for a better understanding of geology that forms the basis of the park by:

- Educating the tourists further about the environment; and
- Promoting the geotourism concept.

Schutte *et al.* (2008:64) suggested that the following to be erected or displayed or made available in each camp:

- Geological maps and diagrams
- Geological exhibitions
- Open air geological museums
- Poster displays
- Integration of geology into the nature-based tourism experience
- Inclusion of geology together with stargazing at Olifants camp.

❖ INTERPRETATION

Geo-education, for the public, tourists, scholars and students, is an important element of geotourism, and is best done by interpretation. Geo-education should take several forms including plays and exhibits, printed brochures and maps, signage, audio presentations and guided tours. Interpretation is an important management function that helps to protect both resources and visitors, and promotes public understanding of the Park service management goals. Only when visitors understand the critical problems that threaten Park resources can they be expected to play a role in minimizing those problems.

Schutte *et al.* (2008:69) added the following as desirable additional educational resources:

- An interactive CD/DVD with photographs and rock descriptions
- Interpretive programs
- Posters behind glass in every camp
- Slide presentations in each camp of the Park
- Photographs
- Models of geological phenomena and fossils
- Geotrails in the bush with a game ranger to protect tourists from wild animals.

The respondents believed it would be wise to talk to the shop operators to sell the proposed guide, "*Tourist guide for the geology and geosites of the Kruger National Park*" in their shops. Tour operators too must be convinced that geotourism should be part of their packages.

6.2.1.6 Future actions

❖ **DEVELOP GEOSITES, GEOPARKS**

Development, management and eventual utilisation of the various geosites in the park should be critically evaluated according to the principles and implementation of sustainability. Geotourism can be used for geo-education and a better understanding of geology that forms the basis of the park. The following actions are important:

- A detailed CD/cassette tour with photographs and a description of rocks
- Contact must be made with the manufacturers of GPS software to landmark geosites in devices that can be purchased by the public
- Implementation of interpretive programs in the Park
- The mounting of poster displays behind glass so that the story from geology to ecozones of the Park can be shown and better understood. They could be erected at the entrance gates, reception desk, next or near to the restaurant/reception desk in each camp, and also at the various picnic spots
- Offering of video/slide presentations at various intervals in each camp of the Park. At Olifants Camp, there are already presentations using a telescope about the stars of the universe that can be seen from the camp.

❖ **AWARENESS CAMPAIGNS**

An A4 printed park guide: "*Tourist guide for the geology and geosites of the Kruger National Park*" will be published in 2009. It will have chapters on the geological history, a detailed description of geosites, the relation between geology, soils, vegetation and ecozones, geoconservation and on geotourism. To accommodate the necessary maps, the booklet will show the geology on a 1: 250 000 scale similar to the present ecozones Park guide. The Park is divided in six regions from north to south and the maps can be seen printed in colour on

two adjacent pages when the guide is opened. Geosites are marked as 120 dotted numbers along most of the main routes and a visitor can stop at any place in the Park to read about the fascinating geoheritage. Three big A1 colour posters have also been made on a 1:500 000 scale. They are titled "*The geology and geosites of the Kruger National Park*", *Geosites of the Kruger National Park*" (showing photographs of typical geosites) and *"The relationship between space images, topography, geology, soils, vegetation and ecozones in the Kruger National Park*". This last poster has smaller maps that will be placed next to each other on the same scale. These posters are intended for universities, schools and even businesses. At some later stage, these posters will also be erected as displays behind glass in each camp of the park. The guide and three posters will be sold to the public, and can be integrated into various activities and existing tours. By these actions, the importance of geology and geotourism will be highlighted. From the guide to the geology and geosites and the accompanying posters, the nonprofessional will learn how the Earth was formed.

Geological exhibitions and open-air geological museums are planned for each camp in the Park. The establishment and layout of open-air geological museums in each of the camps, entrance gates and picnic spots is planned. Large rocks and rock specimens will be collected in and around a camp and placed on show to typify the local geology. With each specimen, there will be a description. Tentative sites in the various camps for these museums have been identified. The planning and building of a geological interpretative centre at Olifants camp is an option for the future as the Camp's featured stargazing could be integrated with geology.

Monitoring of progress and feedback must be done continually. Awareness campaigns should be carried out also. Geotrails in the bush with a game ranger to protect tourists against wild animals are planned. Tours could be arranged, by prior booking, at places such as Red Rocks, the mini gorge east of Olifants camp and a few other stopping places in the southern portion of the park. Ideas can be gleaned by learning from what is happening at overseas geosites.

6.2.1.7 Additional information

Saporiti (2006:2-3) believes that (SANParks), created in 1998 from the transformation of the National Parks Board, became a successful autonomous parastatal entity, a leader in the development of the ecotourism industry with high research standards. SANParks decided that it would not run commercial ventures but instead focus on its core function of biodiversity management. They developed the concept of "*Commercialisation as a conservation strategy.*" One part of the strategy was the concession of exclusive rights to commercial use of lodge sites in the Park. The concessionaires obtained a 20-year contract for lodges (with no right of renewal or of first refusal on expiration) that include environmental and social obligations with penalties for non-compliance. The concessionaires pay SANParks an annual fee calculated as a percentage of the turnover bid during the tender process.

Therefore, the geosites and geotourism projects could be expanded into concession areas. It will be necessary to engage with the concessionaires and to convince them of the usefulness of the concept. They could perhaps be persuaded to make funds available for the publication of appropriate brochures.

Venter, Naiman, Biggs and Pienaar (2008:181) believe that a central challenge for conservation agencies is to establish realistic perceptions of the seriousness of the looming changes and so formulate appropriate management strategies. Therefore, adaptive management theory should be applied to complex systems. The KNP management process is designed to enhance understanding of complex ecosystems and broader social needs, thereby continuously improving the quality of decisions taken while minimising the possibility of being trapped in a circular, self-reinforcing capsule. Park management plans should also be developed though public participation (http://www.springerlink.com/content/1776r2614w120561/fulltext.pdf).

6.2.2 CASE STUDY 2 - PILGRIM'S REST – INTERVIEW RESULTS

A personal interview using a questionnaire was completed with Mrs. Judith Mason, an archaeologist, on the 6th October 2008, and with Mrs. Christine Rowe, the curator of the Pilgrim's Rest Museum, on the 7th October 2008 at Pilgrim's Rest. In addition to the responses to the questions, information about future World Heritage Listing of the reduction works was supplied by the respondents.

6.2.2.1 Background and history

Pilgrim's Rest is a small hamlet situated 1253 metres above sea level on the escarpment of Mpumalanga. The Sabie-Pilgrim's Rest Goldfield underlies an area extending in a north-northeast direction for some 140 km, with a maximum width of 30 km along the Great Escarpment of South Africa. The heart of this goldfield is about 800 km^2, including the country between Sabie, Pilgrim's Rest and Burke's Luck. The geographical coordinates are 24° 54' S, 30° 45' E.

The town is now a Heritage Site and offers the visitor the opportunity to experience something of the life and times of an early South African gold mining community and industry. Today, Pilgrim's Rest reveals the life and times of those adventurous, hardy men and women who searched for gold. They were the pioneers of the largest gold mining industry in the world. Pilgrim's Rest is a perfect example of a prospector's town born during the romantic days of the gold rush.

Gold was mined and melted in ancient times in Southern Africa to a limited extent. Artefacts made of gold were excavated from sites such as Mapungubwe (now a World Heritage Site in the Limpopo Province), Klipwal (near Piet Retief) and Thulamela (in the northern part of the Kruger National Park). Unknown miners worked the quartz reefs for gold in ancient times.

Evidence of their diggings can still be found throughout northern and eastern South Africa and Zimbabwe. Gold was smelted by means of a furnace, probably similar to the iron and copper smelting furnaces excavated elsewhere in southern Africa, and was utilised for personal adornment as well as a means of barter for glass beads from Egypt, ceramics from China and cloth from Phoenicia (http://www.geocities.com/Athens/6398, Schutte (2003(a)), http://www.sanparks.org/parks/kruger/people/heritage/thulamela.php).

European prospectors found the first alluvial gold deposits at Eersteling (Limpopo Province) between 1840 and 1870, but the first major gold rush in South Africa, however, started on 5 February 1873 at Mac Mac, just 5 km from Pilgrims Rest as the crow flies. "Wheelbarrow" Alec Patterson, who pushed his belongings along in front of him, panned for gold in the stream running through the valley in 1873. Legend has it that one of the prospectors shouted with joy: "*Now at last, a pilgrim is at rest*!" After alluvial gold was discovered, diggers and gold prospectors from many parts of the world rushed to this valley to peg their claims, and to seek their fortunes. By the end of that year, there were about 1500 diggers working in the area. As a result, Pilgrim's Rest became the social centre of the diggings. Within a year, there were 21 stores, 18 canteens, 3 bakeries and all sorts of other establishments. In the first decade after proclamation, mining activities centred mainly on the recovery of alluvial gold. Gold was recovered from the stream and the banks of the river and creeks by means of sluice boxes and cradles.. Mining was active until 1971 when the Beta Mine was closed down. It is estimated that over 200 tons of gold were eventually recovered during the course of mining.

❖ GEODIVERSITY, GEOLOGICAL SIGNIFICANCE

Shallow, westerly dipping carbonate units are the host of the gold mineralisation. The gold mineralisation either occurs as concordant (flat reefs), or as discordant (cross reefs). Flat reefs, often very narrow, provided the principal source of the ore. Dating indicates that the mineralisation is related in time to the intrusion of the Bushveld Complex. In 1999, gold mining commenced again when TGME opened four new small gold mines in the area. These are:

1. Frankfurt mine near the Lisbon Falls
2. Dukes' Hill mine (now approaching the end of its productive life)
3. Morgenzon (Clewer) mine (also approaching the end of its productive life), and
4. The Reduction Plant at the old Beta Mine.

❖ GEOCONSERVATION

In 1974, the Transvaal Provincial Administration (TPA) bought the village. In 1986, the farm Ponieskranz, including the village of Pilgrim's Rest town, was declared a National Monument. The National Resources Act No 25 of 1999 was promulgated for the management of national heritage resources in South Africa. Cultural natural sites were transferred to the local government as provincial sites and the sites are now managed by them (http://www.sagoldpanning.co.za/history.htm).

The entire village, the site of the first economically viable goldfield, has been conserved and restored as a living museum. It boasts beautiful examples of houses from the period of the gold rush, as well as an early mining camp and a complete reduction works. A dedicated group of historians and interest groups continue to work towards the further restoration of the village that will provide a better insight into the history of the area.

❖ **OTHER, SUPPLEMENTARY TOURISM PRODUCTS**

Other tourism attractions in the Drakensberg Escarpment area are:

- Waterfalls (Bridal Veil, Horseshoe, Lone Creek Falls (just outside Sabie) Mac Mac, Berlin and Lisbon)
- Bourke's Luck potholes
- Sudwala Cave
- Sabie (the centre of the largest man-made forest in South Africa)
- The Blyde River Canyon (third deepest in world) lies within the 26 000 hectares of the Blyderivierspoort Nature Reserve, a 57 km narrow belt, which runs north from Graskop along the Drakensberg Escarpment
- The Three Rondavels
- God's Window
- Robber's Pass north of Pilgrim's Rest
- Kowyn's Pass. The unique rock formations next to the road on the left-hand side 21 km from Sabie are named Devil's Knuckles
- Long Tom Pass (with the Long Tom Cannon Monument) is along the Panorama Route
- Pilgrim's Rest Nature Reserve
- Mount Sheba Nature Reserve, south of Pilgrim's Rest, and is best known for its indigenous forest
- Hiking trails
- 4 x4 trails
- Horse rides and trails
- Mountain bike trails
- Golf courses
- Inner tube rides in the Blyde River; and
- Bird watching.

6.2.2.2 Present status

❖ **RESOURCE ANALYSES**

The village is divided into two distinct areas - Up Town and Down Town.

1. **Up Town**
   - The Pilgrim's Rest Information Office and the Ticket Office in the Up Town sector offer tourist information
   - The original premises of the "*Pilgrim's and Sabie News*", situated between the present building and the Pilgrim's Hotel, was destroyed by fire between 1916 and 1919. The new building and printing works were erected at the present site of the Printing Museum. It is a tribute to the printing industry, including historical front pages of local publications
   - The origin of the old cemetery is closely connected to the legend of the Robber's Grave. Early graves of the town's residents, showing the common causes of death in the town at that time, can be visited in the historic cemetery
   - The Royal Hotel has beautifully renovated and furnished, with many attractions and activities nearby. The post office, the town hall, restaurants, craft and curio shops are all located in the original old buildings
   - The Dredzen Shop Museum is representative of the typical general dealer of the period 1930 to 1950, and consists of a store stocked with a range of items in use nearly a century ago. The House Museum is a fine example of wood and corrugated iron architecture that is typical of Pilgrim's Rest.

2. **Down Town**:
   - The Joubert Bridge on the edge of the village was built by an Italian engineer Galetti, in 1896
   - In 1896, the increasing production of ore necessitated the rapid establishment of a central reduction works at Pilgrim's Rest. In 1897, the first buildings were erected consisting of a stamp mill, a smelting house and office buildings. An electric tramline was laid to convey ore from outlying mines to the central reduction works. The increasing demand for electricity created by the reduction works was one of the main reasons for the construction of the Belvedere Hydroelectric power station near Bourke's Luck in 1911. At the time, it was the largest power station of its kind in the southern hemisphere. Pilgrim's Rest was the second town in South Africa to be electrified, at a time when London was still using gas. The reduction works was expanded as gold production rose to record levels in 1913 and 1914 and continued to function through to 1959 when the machinery was adapted to produce fertilizer as a by-product. The reduction works closed in 1972 when the last mine at Pilgrim's Rest ceased production. In 1974, the run-down corrugated iron structures were restored and opened to the public as a museum. The Reduction Work Museum is now not being used and it should be restored

(www.saftour.co.za/pilgrimsrest.saftour.co.za/).

Events such as the World Gold Panning Championship 2005 boosted the image of the town. The Championship is held annually, north of the caravan park, west of Joubert Bridge on the northern side of the Blyde River. Here, it can be both seen and experienced how alluvial gold

was panned in the river bed (http://www.sagoldpanning.co.za/index.htm, http://www.sagoldpanning.co.za/history.htm).

Guided tours are offered to two museums a few kilometres out of town, the Diggings Museum and Alanglade House. The latter was built in 1915 by the Transvaal Gold Mining Estates to serve as the official mine manager's residence at Pilgrim's Rest. It is furnished with objects from the period 1900 to 1930 using the first occupants, the Barry family, together with the Pilgrim's Rest milieu, as reference points. The furnishings reflect a modern Edwardian approach, and are mostly of Arts and Crafts, Art Nouveau and Art Deco stylistic origins.

❖ HOW SUSTAINABLE GEOTOURISM IS BEING IMPLEMENTED

A printed-out definition of sustainability was given to every respondent before the interview, either by e-mail or personally. During the interviews, it became clear that sustainability was a concept that was not well understood. Again, in this instance, the respondents did not give an answer to the question.

❖ SWOT ANALYSIS:

The SWOT-analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative in terms of gaining an overview of key issues regarding the mining heritage town as a well-known tourist destination. Not every person gave identical answers; thus their responses were grouped together and were then integrated in the results below.

- **STRENGTHS**

  The strengths that were identified are:
  - The whole farm of Ponieskranz (including Pilgrim's Rest and the reduction works) is protected by law
  - The Pilgrim's Rest Museum Staff do an extremely good job and, in effect, they are the backbone of the town
  - There is a well established tourism infrastructure
  - The Royal Hotel is a world-class establishment with good service and excellent meals
  - The Central Reduction Works is the only of its kind in Africa
  - The historic cemetery.

- **WEAKNESSES**

  The weaknesses that were identified are:
  - A lack of resources
  - The Department of Public Works of the Province is the landowner but cannot maintain the buildings of the town appropriately (although they are mandated to do this). Thus, the Heritage Act is not being implemented

- The Reduction Works is not open to the public and must be restored
- There is only one ATM in the building of the Highwayman's Garage in down town, and this closes at 18:00. All other clients of other banks must use this facility if it is available
- There are no volunteers working in the museums
- For 5 years, the provincial government was reluctant to provide finances for the upgrading of the Pilgrim's Rest museum
- The tarred road from the town towards the junction of the Graskop-Sabie road is too small and poorly surfaced. A completely new road should be constructed as part of the Highlands Meander, similar to the recently completed Long Tom Pass road that is comparable with the best in the country.

- **OPPORTUNITIES**

The opportunities that have been identified are:

- The development of a geological museum in an existing building
- Posters that shows geology and mining activities should be erected in the information centre opposite the Royal Hotel
- The inclusion of the town as part of a UNESCO World Geopark and possible Panorama Route Geopark
- The organisation of guided mine tours
- The declaration of the reduction works as the first industrial World Heritage Site (WHS) in Africa. Contact has already been established with the German Government for the restoration and re-opening of the reduction works. Business plans have been prepared. Because too many alterations have been made to buildings in the town, the village itself will act as a buffer zone and only the reduction works will be a WHS
- An ATM should be installed Up Town, in the Royal Hotel
- All information about the town and its activities should be on a computerised system viewable by the public in the information centre opposite the Royal Hotel.

- **THREATS**

The constraints that were identified are:

- The total provincial government control of the town for party political purposes must be avoided
- Care should be taken that the Gold Panning Championships, which is partly funded by the provincial Department of Culture, Sport and Recreation (DCSR), does not become used for party political gains
- Traders in shacks are not compatible with the character of the old mining town, and so should be moved to a suitable place, out of the town. A similar situation exists at the Strydom Tunnel further north

- Children, playing in the streets with homemade toy cars, are risking being hit by tourist vehicles
- Informal carwash entrepreneurs are operating in the middle of the town. The used water runs to waste down the main street. Many visitors are not happy about this for it is seen as detracting from the veracity of the historic site
- Global social, political and economic factors influence visitor management
- That change of names (such as that of the town of Lydenburg) is believed unnecessary and confusing to visitors
- The downturn in the economy.

6.2.2.3 Lessons learned

School groups should be educated with hands-on displays about geotourism. Books and brochures must supplement this. Because there is neither a policy nor a strategic geotourism development plan, these should be addressed. The museum staff does an excellent job to plan and manage the town, effectively running the town. The town is amply supported by the local mining company, Transvaal Gold Ming Estates (T.G.M.E) that belongs to Simmer and Jack, who commenced gold mining on a small scale a few years ago. However, not enough support is received from the present provincial government to both maintain and upgrade the town and its facilities. No geoconservation legislation currently exists and so there is little or no political will to conserve geoheritage.

6.2.2.4 Implementation of sustainability

To apply overseas research and experience in geotourism development is necessary. In Africa, or in many third-world countries, the principle of sustainability is not yet well understood. Better awareness and knowledge of the benefits of geotourism should be created, not only for visitors, but also for the local population who could be expected to reap the rewards.

❖ SUSTAINABLE GEOTOURISM STRATEGY

The following actions are necessary:

- Make more printed geological maps (scale 1: 250 000) available at the information office. They could be hung against the walls
- A metallogenetic map of the Pilgrim's Rest Goldfield will show the distribution of gold in the whole area. All the data is available in GIS and it should be made easily available to the tourist
- Publish a 1:50 000 map that would show all the old mines, diggings, gold bearing reefs, old 'batteries', accommodation, tourist attractions, historical places, waterfalls, and hiking paths as a permanent laminated wall map. The sites of the gold bearing reefs should be emphasised. It was suggested by the museum personnel that not too

much information should be given on one map. Therefore maps showing different categories of tourist information can be made available

- Show old photographs that depict the history of the town in the information office;
- Make posters and aerial photographs of the whole area, and put them in the information office or at strategic places, to enhance the visitor experience
- At the Diggings Museum south of the town, a display of old photographs was planned and improvement plans were submitted by the museum staff to the provincial authorities. However, no positive response has been forthcoming for the intervening five years
- Print brochures that explain the geology and mining history for the visitors; and
- Upgrade the existing topographical and other models in the information office to aid easier interpretation of the information provided
- Begin an open-air geological museum of all the rocks and minerals of the area, but only in an existing building as no new structures are allowed in the town. All the geosites on the farm Ponieskranz are automatically protected as well as the town of Pilgrim's Rest and the Central Reduction Works. An alternative site could be the Mac Mac Falls east of the town.

Figure 6.2: Entrance to the open air Diggings Museum, on the Sabie road, south of Pilgrim's Rest

Sustainable geotourism development should be vigorously addressed because no-one really seems to understand the concept of sustainability. The various stakeholders are the Department of Public Works and the Department of Culture, Sport and Recreation (Heritage Section) of the province, the tourism sector and the T.G.M.E mine. Better networking has to be established between them if the issues of sustainability are to be successfully addressed.

By means of the South African National Gold Panning Championships, promoting gold panning, in effect, means supporting heritage conservation and bringing a part of the country's heritage into a new and vibrant perspective. It is a "*live one's heritage*" experience

that gives the country's public the opportunity to be in touch with an exciting part of history in a very tangible way.

The respondents stated that marketing is done at relevant tourism events, that is, at the Tourism Indaba in Durban and at travel shows. A better, more focussed, marketing effort is necessary and should include pamphlets, brochures, booklets, TV programs, together with articles in journals. The question must be asked, who will undertake this on a continuous basis?

6.2.2.5 Benefits

- **CONSERVING NATURAL HERITAGE**

The town of Pilgrim's Rest is an example of how mining heritage is conserved and enjoyed by tourists.

- **CREATE OPPORTUNITIES TO WORK WITH OTHER TOURISM SECTORS**

At the 1997 World Panning Association's Annual General Meeting. South Africa applied for membership and became the twentieth member country of the Association. South Africa was subsequently represented at the World Gold Panning Championships in Italy, Czech Republic, Poland, Australia, Japan, Switzerland, Slovakia, the 2005 European Championships in Spain, World championships in Finland, the European championships in Austria and the 2007 World Championships in Canada. The 2005 World Gold Panning Championships were hosted in Pilgrim's Rest. This is an example of how all stakeholders working together can facilitate participation in Gold Panning Championships. The creation of opportunities to work with other tourism sectors in South Africa is an opportunity that should be investigated.

- **ENHANCING VISITOR EXPERIENCE**

The museum of the town is doing excellent work by publishing many brochures and informational material, as well as by organising visitor tours. By this, mining heritage is being interpreted to the visitors. A visit to the Information Centre, which is itself a museum, is most worthwhile to stimulate the visitor experience. The displays are excellent. Events such as the World Gold Panning Championships 2005 boost the image of the town. The South African National Gold Panning Championships is October is now an annual event. Even so, there is a lack of funding from the provincial authorities.

For successful tourism, the character of the town as stipulated in Act 25, 1999 should be implemented. Traders in home-made shelters do not enhance the touristic character of the old mining town. For this reason, suitable alternative accommodation must be found.

6.2.2.6 Future actions

❖ **DEVELOP GEOSITES AND GEOPARKS**

Geosites cannot be developed on Ponieskranz because the whole farm has been declared a provincial site. However, there is an opportunity to construct an open-air geological museum next to the parking place at Mac Mac Falls as it is already being protected.

❖ **BETTER INTERPRETATION FACILITIES**

Better interpretation facilities are planned for the museum. Monitor progress and feedback should be done continuously. Awareness campaigns should address the nonprofessional. Geo-excursions, seminars, and lecture programs must begin at school level with hand-on displays and experiences.

6.2.2.7 Additional information

During the interviews, a copy of a very informative document by Rowe, Mason, Van Dyk and Reinders (2006): "*Pilgrim's Rest. From mining village to World Heritage Site*" was given to the author. The objective of the document was a description of the development of the heritage assets at Pilgrim's Rest to secure World Heritage Listing, thus making the Central Reduction Works the first industrial site to be listed in Africa. In 1999 and again in 2002, experts from Germany visited the reduction works for a World Heritage Listing. In 1999, the museum received funding from the Westphalian Government, Germany, to erect an electric security fence around the Central Reduction Works and to purchase computer equipment. In 2003, funding was provided for the stabilising and securing of two severely deteriorating structures and architectural drawings and specifications of the museum visitors' path.

Rowe *et al.* (2006:21-23) summarise the potential value of Pilgrim's Rest and the surrounding area as a World Heritage Site, as follows:

- **Heritage status**. It will evaluate the town and surrounding area as a new level of heritage status. It will be the first Industrial Heritage Site in Africa, and this will bring added prestige and international recognition
- **UNESCO funding**. This is given to all world heritage sites and grants. The funding is often in the form of expertise and training in the professional and scientific fields of heritage conservation
- **Sustainable utilisation of resources**. This means that there must be a sound management plan available to ensure sustainability and development of the heritage site when World Heritage Listing is sought
- **Education and training**. The potential benefits are:
  - **Museum related**:

By providing guided tours to the public and school groups, information is communicated that increases public awareness of history and supplements the school syllabus. Specialised staff will be needed and they will need to be trained to perform duties of a professional nature within the museum field

- **Management and support staff**:
  Staff will be needed to manage and perform operational and general maintenance duties. Of these, a number would undertake relatively specialised programmes, and, as such, will need specific training, such as that required for locomotive and technical staff
- **Construction**:
  During the restoration and construction phase, there will be many opportunities to embark on training and transfer skill programs, specifically with regard to the building and construction industry
- **Tourism**:
  In terms of tourism, World heritage listing ensures listed sites a prime position and as the opportunity to become a preferred destination. The income from tourism will benefit not only the town, but also the province as a whole. New opportunities will be created in terms of services and needed tourist accommodation in the area
- **Economy and job opportunities**:
  An increase in tourism would greatly affect the economy of the area, which currently relies largely on tourism for income. At present, job opportunities are limited, with few or no immediate prospects for expansion. During the construction phase of the projects, a large number of temporary jobs will be created, together with a great deal of opportunity for unskilled workers to receive both income and training. In order to operate and manage a heritage site of this magnitude, and to make it available to the public, a considerable number of specialized, of skilled and of unskilled staff will be required within the public and related sectors. In order to deal with the increase in visitors to the area, businesses in Pilgrims Rest and surrounding areas will also need to employ more staff.

6.2.3 CASE STUDY 3 – KROMDRAAI VISITOR GOLD MINE - INTERVIEW RESULTS

A personal interview with a questionnaire was held with Gavin Whatley, the owner, on the 2nd October 2008 at the old Kromdraai Visitor Mine. The owner of the small visitor mine was the only person to be interviewed as visits to the existing, producing, gold mines are difficult to organise, except for geoscientists on special occasions.

6.2.3.1 Background and history

The Kromdraai Visitor Gold Mine is situated in the serene Kromdraai on the farm "*Ibis Ridge*" about 60 minutes drive from Johannesburg International airport and 40 minutes from

Johannesburg city. The geographical location co-ordinates are 26°00, 211' South 27°46, 578' East.

Kromdraai is a very small mine. The old workings are entered through a large opening in the side of the hill. A short walk down the coco pan tracks through roughly worked tunnels leads into the heart of the mountain. The underground trip is a level and easy walk for all age-groups inside the mine tunnel. The conditions that people had to endure while extracting the gold ore can only are marvelled at. This is a wonderful outing, both for adults and children. The trip includes an exciting and informative tour of one hour with a lecture on the history, geology, ecology and culture of the mine. As the second gold mine of the Witwatersrand, Kromdraai can claim a prominent place in the history of the development of the gold fields of the Witwatersrand. In 1881, Johannes Stephanus Minaar whilst prospecting on the farm Kromdraai (with permission of owner J. H. Grobler) found a gold nugget that led to the discovery of the Kromdraai reef. This was 5 years before the main reef was discovered in Johannesburg. Kromdraai is part of the Black Reef Formation into which a 300 mm thick gold bearing hydrothermal quartz vein has intruded. In January 1882, the Potchefstroom Syndicate was formed, consisting of Minaar, T. Lisemore (another prospector) and five diggers. They applied for a license to prospect further.

The first government mining concession on the Witwatersrand was granted to Kromdraai Goldmine by the (then) President, Paul Kruger. By this time, it was well known that gold had been found on Kromdraai Farm, and many people were anxious that part of the farm be declared an open public digging. Anticipating a gold rush on his property, Grobler applied for a 'mynpacht' of 100 morgen to be granted to him and the rest to be declared as public diggings. On the 8 September 1885, a proclamation was signed by President Paul Kruger throwing open the rest of the farm to public diggings. Grobler effectively held the rights on most of the area known to be gold bearing and he could lease this to other diggers. Some of the unlicensed diggers worked with sluice boxes or panned for alluvial gold. There were a number of problems that faced the diggers, licensed or not, regarding such things as access to water for washing the gold, and generally, the feeling was that the whole farm should be opened to public diggings.

The prospectus of the "*Kromdraai Gold Mining Company*" appeared in the "*Volkstem*" in 1886, Capital: £30 000, Directors: Dow, Rimer, Cilliers, Bray and Nourse. The first gold was produced in March 1887in the weight of 10lbs 11oz and 8dwts, obtained from 271 tons of quartz. This was a satisfactory result at a ratio of 25 grams of gold per ton. The ore was crushed by a stamp battery erected at the confluence of the Bloubank Spruit, the Sterkfontein Spring or 'race' and the head-waters of the Crocodile River.

As far as can be established, mining on the site ceased in about 1910, reopened for another year in 1913, closing finally in 1914. The mine was subsequently made safe by a large mining company and is regularly inspected

(http://www.showcaves.com/english/za/mines/Kromdraai.html, http://www.oldkromdraaigoldmine.co.za/).

George Harrison discovered by chance, the main gold reef near Johannesburg in 1886. The first diggers moved in, and by September of that year, 3000 prospectors were working the area. The geologists Harry and Fred Struben were convinced of rich deposits, and erected a five-stamp battery on top of the area that became the largest gold-bearing reef in the world. By 1898, the gold production of the Witwatersrand was 118 tons. At that time, this exceeded the output of the entire United States of America.

❖ GEODIVERSITY, GEOLOGICAL SIGNIFICANCE

Unlike the main gold field of the Witwatersrand, the vein at Kromdraai is different in that it is not a conglomerate reef deposit. Shale and metamorphosed slate dip to the north in the mine. Virtually all of the main gold reefs of the Witwatersrand dip to the south in the Johannesburg area. The Kromdraai and Blaauwbank deposits are both hydrothermal vein deposits. In the Kromdraai mine the vein follows an irregular path where the main vein forced itself along a thin shale band, overlain by quartzite of the Black Reef Quartzite Formation. This was a natural plane of weakness. Thin offshoot veins that probably followed cracks in the rocks also occur. The chief mineral is white quartz at Kromdraai and Blaauwbank. Minerals are found, such as pyrite and arsenopyrite in the quartz at Kromdraai. The gold was about 20-25 grams per ton of quartz. There is still a little gold left in the mine. But the entire vein has been removed except in places where small pillars were left to support the roof. Even if it were to be removed, it would not be profitable to rework it now.

Figure 6.3: Examples of gold-bearing ores. Conglomerate (left) from a Witwatersrand Gold Mine and quartz vein (right), Old Kromdraai Visitor Mine

❖ GEOCONSERVATION

Since 1995, the present owner has conserved all the old workings in the mine, and it now forms part of the protected area of the Cradle of Humankind (COH). A holistic approach is therefore used to conserve the geoheritage, mining history, history and ecology.

❖ **OTHER, SUPPLEMENTARY PRODUCTS**

The Cradle of Humankind (COH) with all the solution caves, Sterkfontein, Maropeng, the Rhino Park and all the guest lodges are other tourism products that can be associated with the geoheritage site.

6.2.3.2 Present status

❖ **RESOURCE ANALYSIS**

It consists mainly of geoheritage, mining equipment and a small museum where a variety of old cooking and sewing utensils can be seen. The resource owner, his wife and a trained guide show people around the area.

❖ **HOW SUSTAINABLE GEOTOURISM IS BEING IMPLEMENTED**

A print out definition of sustainability was given to the respondent before the interview by e-mail and personally. During the interview, it again became clear that sustainability was a concept that was not well understood. The respondents did not give an answer to the question.

❖ **SWOT ANALYSIS:**

The personal interview using a questionnaire with Mr. Gavin Whatley proved very valuable and much information was obtained. The SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative also when obtaining an overview of key issues of the visitor mine. The owner also acts as a guide when the mine or museum is visited and he has, with great enthusiasm thoroughly researched its history.

- **STRENGTHS**

  The strengths that were identified were:
  - Authenticity
  - Visitor mine experience *par excellence*
  - Excellent interpretation and knowledge of gold mining by the guides;
  - A good website exists
  - The mine is unique because of the journey *'back in time'* that is taken;
  - Good tarred roads reach the mine
  - Strategic location adjacent to Sterkfontein and the Cradle of Humankind (COH); where
  - Calcite mining at Sterkfontein led to the development of the gold mines at Kromdraai and the Witwatersrand. This also led to the discovery of the hominid remains at Sterkfontein.

- **WEAKNESSES**

  The weaknesses that were identified were:
  - There is a lack of capital for development
  - There is a noticeable lack of educational visits by schools
  - No coffee bar or restaurant is available
  - The road signs to the visitor mine are poor
  - Not enough marketing and awareness-creation has been undertaken
  - The property is on private land and so is not supported by the COH.

- **OPPORTUNITIES**

  The opportunities that were identified were:
  - The larger mining companies could invest in the development of the mining complex to show the importance of South Africa's mining history
  - The COH should be involved to help the landowner to develop the site
  - A tea room and bed-and-breakfast facility could be built on the property
  - Thought should be given to means of attracting more visitors
  - A maintenance programme for the existing buildings needs to be developed
  - An outlet for books, guides, pamphlets, videos, etc. needs to be provided.

- **THREATS**

  The constraints that were identified were:
  - There is a high level of crime in the region
  - Cable theft is a significant problem for the mine
  - The downturn of the economy poses a threat to the viability of the operation.

6.2.3.3 Lessons learned

Education is a necessity. Schoolchildren are fascinated by rocks, the mining equipment and the small museum. No policy or strategic geotourism development plan exists. The owner suggested making the whole farm a nature reserve to cater for all tourists with the emphasis on geotourism and ecotourism. There is no financial support from government, local municipalities and mining/financial companies. With increasing costs, it is necessary for the future of the visitor mine that they become involved. Because the visitor mine is not very well known, it is important that much more should be done in future to make people aware of it.

6.2.3.4 Implementation of sustainability

Educate people, particularly educators, about geology. A concise guide about the Kromdraai Visitor Mine, its development and history could be written and published. The COH, tour operators, school tour operators and normal tour operators, and the accommodation sector are stakeholders and should be encouraged to take up their responsibility. Currently, networking is done via the Internet and by word-of-mouth. The management of the mine is good. The

TV program, 50/50, should be contacted to arrange a visit to the mine to help market it. Sustainability was a new concept to the owner, and so was not implemented at all. However, the owner was willing to learn about at this aspect and to implement it.

6.2.3.5 Benefits

More visitor artefacts will enhance the visitor experience. Geoproducts should be for sale, that is, models of small coco pans, lockets and enamel plates with Kromdraai printed on them. The interpretation facilities must be expanded. They should be professionally written and displayed to enhance understanding.

6.2.3.6 Future actions

It was suggested to the owner that contact should be made with the COH UNESCO with the intention of creating a possible future geopark. This was seen as a good idea. It was emphasised to the researcher that fossils are preserved in the COH because of the geological control that takes place. TV campaigns, documentaries, magazine articles, pamphlets and books are necessary to increase awareness of the visitor mine. At the time of the visit, feedback on mine visits was received via the Internet and from a visitor book. This feedback should be encouraged.

6.2.3.7 Additional information

There is also a gallery with paintings and framed pictures that adds interest to the mine museum.

6.2.4 CASE STUDY 4 – THE DIAMOND INDUSTRY KIMBERLEY - INTERVIEW RESULTS

A personal interview with a questionnaire was done with Mr. Ian Russell, General Manager of the Diamonds and Destiny Visitor Centre at the Big Hole in Kimberley, on the 22 September 2008. Thereafter, Dr. Leon Jacobson, a geologist at the McGregor Museum in Kimberley, was interviewed on 23 September 2008, and finally, Mrs. Victoria Ziegler, Manager Kimberley Microdiamond Laboratory (KMDL), De Beers, Kimberley, was interviewed on 24 September 2008.

6.2.4.1 Background and history

The co-ordinates of Kimberley are: 28°44′18. 78′S, 24°45'17. 87′E. Kimberley is famous for its Big Hole, which is often referred to as the world's deepest man-made hole. (http://www.showcaves.com/english/za/mines/Kimberley.html)

The Big Hole itself is an astonishing sight. It was mined to a depth of 215 metres. It has a surface area of about 17 hectares with a perimeter of about 1.6 km. It is these statistics that support the claim to be the largest hand-dug excavation in the world. On 14 August 1914, work on the mine was suspended (http://www.places.co.za/html/bighole.html). In October 2004, De Beers announced a R50 million project, the Big Hole initiative. From the beginning, the company consulted with local stakeholders, the local and provincial government, tourism and business, to ensure that its plans were in line with those of the province and with the local municipality's urban renewal strategy. De Beer's overall intention was on providing business opportunities for Northern Cape's small-to-medium businesses and suppliers to develop their potential. The primary focus was the development of a world-class visitor's centre, the De Beers Diamond World, (this was to focus on De Beers, the Big Hole and Kimberley). The Big Hole tourism facility was handed over to a trust to manage it on behalf of the people of Kimberley. The board of trustees included representatives from De Beers and many stakeholders from the broader community (http://www.debeersgroup.com/en/Exploration-and-mining/Mining-operations/Kimberley/).

In 1867, Erasmus Jacobs, son of Daniel Jacobs, picked up a little, shining rock near Hopetown, and this led to the first diamond rush along the Vaal and Orange. On 16 July 1871, Essau Damoense discovered a whole handful of diamonds in the Colesberg Kopje that had formed a small hill. It was the erosional surface remains of a kimberlite pipe. This led to a diamond rush that made it impossible for the De Beers brothers to keep their farm. Digging commenced at the Kimberley mine site in in the same year. Originally, diamonds were mined in an open-cast mine, following the pipe. Colesberg Kopje disappeared and turned into a pit. Eventually, the result was the Big Hole; a vast crater that was dug entirely with picks and shovels. In this open-cast mine, 2,722 kg of diamonds were mined until its closure in 1914. Approximately 22.5 million tons of earth was removed.

"*De Beers Consolidated Mines was incorporated by Cecil Rhodes some 110 years ago it became the largest and most successful diamond company in the world, and so it has remained*" (Nicky Oppenheimer, Chairman of De Beers, 1999). The history of De Beers falls into three broad stages. In its first years, when the company produced over 90% of the world's diamonds, it was able to control the production, and hence the supply, of diamonds almost at will. From the beginning of the 20th century, when rival producers began to challenge its pre-eminence, De Beers used its still-dominant position to co-ordinate and regulate the supply of diamonds in pursuit of price stability and consumer confidence. In the closing years of the last century, the globalising economy rendered De Beers' role of industry 'custodian' both inappropriate and expensive. To respond to this, De Beers set about crafting a new strategy for the 21st Century by a suite of innovative programs and alliances designed to reinvigorate the industry and to grow demand for diamond jewellery.

De Beers' presence in Kimberley continues through the multi million rand Combined Treatment Plant processing the tailings resources, as well as the Big Hole project that is a

unique and exciting way for De Beers to invest in tourism activities, thereby supporting the communities that surround Kimberley Mines (http://www.thebighole.co.za/).

❖ GEODIVERSITY, GEOLOGICAL SIGNIFICANCE

Lynn, Wipplinger and Wilson (1998:232-258) reckon that South Africa is the only country in the world where diamonds are produced from kimberlite pipes, dykes (fissures), and blows, from eluvial (remaining close to the fissure), alluvial (transported away from the source) and from marine sediments. The west coasts of South Africa and Namibia have the only known, mega-placer deposits recognised on Earth. It is called a mega-placer deposit when it contains more than 50 million carats of diamonds, of which at least 95% must be of gem quality.

❖ GEOCONSERVATION

Little has been done so far for the geoconservation of old diamond mines and workings except for the Big Hole at Kimberley, and the Cullinan Mine. Unfortunately, there is no consolidated effort in Kimberley. Individual establishments such as the McGregor Museum did much for archaeological conservation. Dr. Jock Robey, a very experienced kimberlite geologist, gave excellent geological input into the exhibitions at the Big Hole when he was working for De Beers.

❖ OTHER, SUPPLEMENTARY TOURISM PRODUCTS

Other supplementary products in Kimberley and surrounding area are:

- The Digger's Fountain, in the Ernest Oppenheimer Memorial Garden, portrays five diggers holding a diamond sieve on high, each digger representing one of the five major Kimberley mines
- The McGregor museum is well-known for its archaeological exhibits
- The Ghost Trail is a night-time historical tour of the city utilising reports of ghost activities and sightings
- The battlefields of the Anglo-Boer War (1899-1902) in and around Kimberley are:
  - Honoured Dead Memorial (Kimberley)
  - Cape Corps Memorial, World War II Cenotaph (Kimberley)
  - Blockhouse at Modder River
  - Highland Brigade Memorial at Magersfontein.
- On the northwest outskirts of the town lies Kamfers Dam; this supports the largest permanent population of Lesser Flamingos in Southern Africa. Man-made nest were made during 2007 to help with breeding of these birds. This was a very successful operation
- Other places to visit are Canteen Kopje 35 kilometres from Kimberley, Barclay west, where the first diamond was found. In this pit, the early diggers removed 4m of Hutton sands to get to the underlying diamond-bearing younger gravels. This layer

was mined further by means of small horizontal tunnels that are sometimes over 10m long

- On the farm Nooitgedacht, a glacial pavement that was formed 250 million years ago, can be seen

(http://www.sa-venues.com/regions/default.htm).

6.2.4.2 Present status

❖ **RESOURCE ANALYSIS**

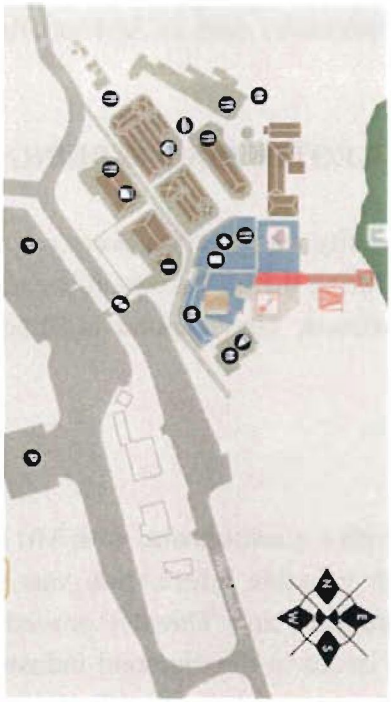
The Big Hole is a new Diamond Theme Park located at the rim of the hole and is owned by De Beers. It was developed from the former Kimberley Mine Museum when in 2006 De Beers invested R50 million for the renovation and extension of the site. The new Diamonds and Destiny Visitor Centre at the Big Hole in Kimberley was completed in 2006. It was opened to the travel industry, the local and international media, and leading tour operators on 23 November 2006. It attracts about 100 000 visitors per year. The tourist attraction caters for all visitors. It is an excellent example of a visitor centre. The existing Open Mine Museum is divided into two sections. *Diamond Rush* is a unique leisure area for visitors in an *Old World Kimberley* setting developed from existing buildings and the prevailing surroundings. In the old town, period buildings that have been preserved or restored to their original glory can be discovered; these include a church built in Europe and shipped to Kimberley, Barney Barnato's Boxing Academy, the digger's sleeping quarters and the De Beers Private Railway coach that was used by Cecil John Rhodes to commute between Cape Town and Kimberley. This old town brings life to the New Rush era of life where desperate, but hopeful and determined people flocked to the town of Kimberley to seek their fortune.

The *De Beers Diamond World* is dedicated to the history of diamonds. It focuses firstly on the history and impact of diamonds on the history of the South Africa and secondly, on the impacts of labour and where it comes from. In a state-of-the-art, 65-seat theatre, a short film introduces visitors to the story of diamonds at Kimberley. It takes audiences back to early 1867, when children picked up a shiny stone on the banks of the Orange River.

The Real Diamond Display is housed in a vault that was specially constructed for the Big Hole Facility. The exhibition at the Diamond vault in the Pulsator Shed houses over 3 500 real diamonds. Among the gems on display is the 616, named for its carat size, which is the largest, uncut, octahedron diamond in the world. Appropriately, the Eureka, the first diamond discovered in South Africa in 1866, is also on show. It was over 21.10 carats uncut and is now 10.73 carats cut.

The most spectacular addition of the recent renovation is a cantilevered platform above the rim of the Big Hole that was completed for the November 2006 opening. The Platform is 30 by 30 Cape feet, which was exactly the size of a 19th-Century mining claim. It allows the visitors a vertical view down into the hole, as it protrudes across the western rim like a half

suspension bridge. However, although it is 90m long, it does not protrude over the central pit with the lake. In time though, with the natural break-back of the hole, the platform will eventually be positioned further towards the centre of the hole (http://www.thebighole.co.za/). A mineshaft was recreated next to the viewing platform. Here, visitors can experience the perilous 19th century mining conditions.



Figures 6.4: Plan of the Diamonds and Destiny Visitor Centre, Kimberley

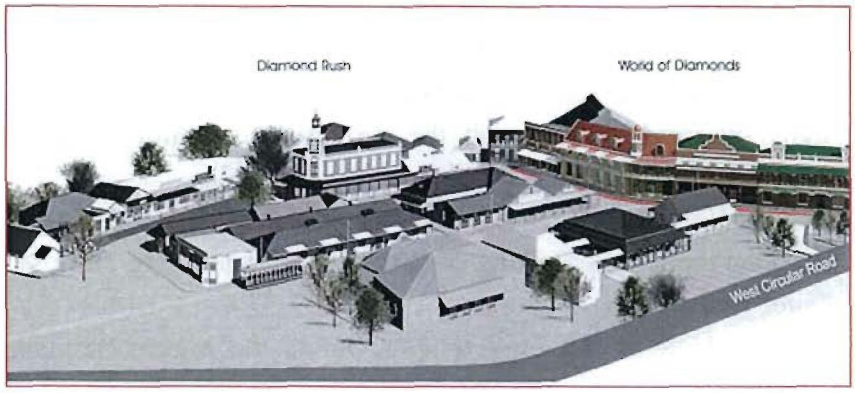


Figure 6.5: Diamonds and Destiny Visitor Centre, Kimberley.
(http://www.thebighole.co.za/sitemap.html)

Equipment used to process the diamond ore is housed in the Pulsator Building. Visitors can see jigging machines and grease tables specially designed to extract diamonds from the ore. Although mining and extracting techniques have improved vastly, modern mining still uses

the same basic methods that were developed in Kimberley. For an interactive experience visitors can also try their hand at sorting and selecting diamonds.
De Beers had a large division of well-trained geologists in South Africa, but as the Koffiefontein Mine, Kimberley Mines and Cullinan Mine have been sold to Petra Diamonds, fewer geologists are now based in Kimberley. De Beers is focused on developing local talent in the countries in which it is actively exploring, such as Angola. There are also a number of geologists working for smaller companies such as African Diamonds, Tawana Resources and BRC Diamondcore.

❖ HOW SUSTAINABLE GEOTOURISM IS BEING IMPLEMENTED

A print out definition of sustainability was given to every respondent before the interview, either by e-mail or personally. During the interviews, it became clear that sustainability was a concept that was not well understood. One respondent (Ziegler) gave a response to the question, but the others did not.

❖ SWOT ANALYSIS:

During the personal interviews with a questionnaire with Mr. Ian Russell, Dr. Leon Jacobson, and Mrs. Victoria Ziegler, much valuable information was obtained. The SWOT-analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative when forming an overview of the key issues in the diamond industry of Kimberley. Every person gave their answers on specific matters in their specific domain. Thus, their responses were grouped together and were then integrated in the results that follow.

- **STRENGTHS**
  The strengths that were identified are:
  - The site is a world leader in diamond mining and beneficiation
  - Many overseas tourists visit the well-known diamond destinations such as Kimberley and Cullinan
  - The Big Hole is world famous and a world class destination
  - The Diamonds and Destiny Visitor Centre at the Big Hole is a world-class visitor centre
  - The Big Hole is not only unique, but is the biggest tourism attraction in Kimberley
  - The impact of diamonds on history is a significant draw
  - The contribution by various stakeholders.

- **WEAKNESSES**
  The weaknesses that were identified were:
  - The historical reliance on De Beers
  - The location – few overseas tourists are attracted unless they specifically wish to come to Kimberley; there is no "passing trade"

- There are insufficient, other tourism attractions
- There is a lack of public interest in geology (for instance, geology is not incorporated in the school curriculum)
- There is no written guide to the Big Hole
- There is no government support for the site
- No education centre at the site.

- **OPPORTUNITIES**

The opportunities that were identified were:

- The possibility of integrating the geotourism product into a greater regional, provincial, and even a countrywide, strategy
- The development of geotourism
- Greater educational development and enhancement
- Possible incorporation into a UNESCO World geopark
- The development of other, complimentary, tourism attractions
- The compilation of a book for laymen on diamond geology
- The education of the layman on diamond geology
- The establishment of independent cutting and polishing facilities in Kimberley
- The publishing of visitors' brochures and routes
- The writing and publishing of a new book on the diamond industry of South Africa.

- **THREATS**

The constraints that were identified were:

- A declining diamond mining industry
- Intervention by the government as sole mineral rights holder
- The standard of teaching is very poor in schools, particularly the subjects of mathematics and science, and so fewer children are available and trained for technical jobs
- There is mo geology curriculum at school
- Geology is not marketed as a 'sparkling career'
- The downturn in the economy.

❖ **LACK OF INTEREST IN GEOLOGY**

One of the respondents (Ziegler) remarked that there is also a lack of interest in either mathematics or science. This must be addressed if non-professionals are to be educated in these subjects.

6.2.4.3 Lessons learned

No strategic management plan for geosites exists except for that of the Big Hole. The planning, management and marketing was exceptional for the new Visitor's Centre.

Kimberley is a new emerging business centre and to promote this, local construction teams were used. South African Airways (SAA) is the only airline that serves the town – flights to the town are very expensive with a single ticket from Johannesburg costing about R2 400! Financial support for the development from came from local municipalities and mining and financial companies. Support from the government is less tangible, being only verbal. It is believed that SAHRA should be restructured to mandate the fulfilment of their mission to preserve natural and cultural heritage. New legislation is required to encourage the preservation and conservation of South Africa's natural heritage.

6.2.4.4 Implementation of sustainability

During the interviews, it became clear that sustainability was a concept that was generally not well understood. However, De Beers is an exception. One of the respondents (Ziegler) pointed out that De Beers is focused on sustainability and measures itself against Best Practice Principles. The De Beers Annual Report to Stakeholders highlights progress made by the company in terms of sustainability, and the report is divided into sections under the headings of:

- Economics
- Ethics
- Employee
- Community
- Environment.

It must be pointed out that this is from the De Beer's company point of view. The De Beers Family of Companies is committed to sustainable development as an integral part of the way the companies do business. Addressing sustainability issues means enhancing their relationship with host and partner governments, building consumer confidence in diamonds, and ensuring their activities contribute positively to the livelihoods of both present and future generations. The development of a powerful business model is based on the convergence of two compatible aims:

1. The company's need for long-term access to natural resources in a secure and stable environment, and
2. A government's need to generate reliable revenues from natural resources to invest in its people.

This model is particularly important in diamond mining, given the long lead times before investment in a mine returns a profit, and given the fact that the life of a diamond mine is typically measured in decades rather than years.
(http://www.debeersgroup.com/en/Sustainability/,
http://www.debeersgroup.com/ImageVault/Images/id_1041/ImageVaultHandler.aspx)

When overseas research and experience in geotourism development is applied, the following points become important:

- Main objective must be to acquire better awareness and knowledge
- The generation of a sustainable geotourism strategy
- Sustainable geotourism development.

A geopark should be established for the Kimberley area, including Barclay West. The main objectives should be:

- To engender better awareness and knowledge of geotourism
- To enable good planning
- To promote sustainable geotourism development
- Plan implementation
- Constant evaluation and review.

A starting point for the sustainable development of geotourism in the diamond industry would be to educate tourists more about the environment, particularly about geology, geodiversity, geoheritage, the interpretation of geology and the geological processes.

❖ STAKEHOLDER INVOLVEMENT

In Kimberley and Cullinan, there are many stakeholders who work closely together. They represent De Beers, Northern Cape tourism, Provincial Government, local and district municipalities, accommodation suppliers, museums, art galleries and the private sector. The Big Hole project increased the number of visitors to Kimberley and so is of socio-economic benefit not only to the Kimberley community, but to the Northern Cape as a whole. Battlefields, museums and nature reserves sectors can all work together for mutual benefit in the tourism sector.

For example, during a visit to Kimberley, a tour to view the cutting and polishing of diamond can be arranged. The tourist will be told that the four most popular factors used to measure diamond quality are cut, carat, colour and clarity (4Cs). These criteria were introduced by De Beers to consumers in 1939 in order to provide consumers with a reference for evaluating diamonds. It is noteworthy that colour, clarity and carat are created naturally as the diamonds are formed in the earth, while cut is directly influenced by the human hand.

High quality diamonds are mostly used as jewellery while industrial diamonds are mainly used for cutting, grinding and drilling. The jewellery manufacturing industry is producing distinctive gold, platinum and diamond of a quality and design that confirms the country's position as the land of gold and diamonds for although the 4Cs provide scientific guidelines for evaluating diamond quality, they do not necessarily measure diamond beauty. It is this perceived beauty that encourages the purchase of jewellery, of gold and of diamonds.

Networking is encouraged with the tourism and with private business sector. De Beers still retains management control of the Big Hole.

❖ **MARKETING**

All diamonds from De Beers' South Africa mines are sorted after they arrived into around 12 000 categories and valued at Harry Oppenheimer House in Kimberley. Not all diamonds can be cut and polished profitably at one centre. Labour, technical expertise and specialisation all contribute to the manufacturing costs. About half of South Africa's production, in value terms, is cut in the country. In order to stimulate the demand for diamond jewellery, De Beers conducts international marketing campaigns in 24 countries. De Beers began diamond advertising in 1939 and today, the slogan '*A diamond is forever*' is internationally known. (http://www.debeersgroup.com/en/Sales-and-distribution/Sorting-and-valuing/).

Even more promotion should be done with lectures, slide shows, audio-visual presentations and printed brochures by all the stakeholders in the diamond industry in Kimberley. Articles should be written intended for publication by magazines and TV programs should be made.

6.2.4.5 Benefits

❖ **CONSERVING NATURAL HERITAGE**

The Big Hole project is an excellent example of how the natural heritage can be conserved. De Beers has also established the Diamond Route. The Diamond Route is a partnership between De Beers, E. Oppenheimer and Son and AGRED (African Gamebird Research, Education and Development Trust). The initiative serves as a collective brand for bird conservation areas dedicated to biodiversity protection and to ecotourism. As part of the project, nine De Beers and Oppenheimer properties have been opened to the public. These include about 250 000 hectares of ecologically rich and diverse protected areas, situated in Gauteng, Northern Cape and Limpopo Province.

❖ **ENHANCING THE VISITOR EXPERIENCE**

To enhance the Kimberley visitor's experience, the Diamonds and Destiny Visitor Centre is divided into two sections. Audiovisual effects simulate the underground experience, while a spectacular, upgraded, rough diamond display, a viewing platform and interactive audiovisual displays enhance the visitor's experience. The diamond and jewellery store, coffee and curio shops complement a unique visit to the museum. When Kimberley was visited during the research project, the tram, and an example of historical mass-transportation, was not running but was in the process of being repaired prior to being returned to service. Gold and platinum deposits and mining and, lately, the cutting, polishing and diamond jewellery industry are closely associated with the diamond industry and so, complement it. Tours to existing small alluvial working mines could be arranged to enhance the touristic product.

❖ GEO-EDUCATION

The nearby Bultfontein Mine offers the world's only guided tour of an operational diamond mine. Wearing a real miner's gear - an overall with light reflecting strips, safety boots, hard hat, battery cell with headlamp and an individual "*Osizamoya*" which is an oxygen generating survival pack, visitors are given a taste of the diamond mining experience.. A plunge of 840 meters explores the source of those much wanted, glittering diamonds. Rubbing shoulders with real mineworkers, the visitor becomes one with the rhythm and pulse of the world's oldest diamond mines, tastes dust from ancient kimberlite rock and knows that this is the educational experience of a lifetime. It is not yet known if the tours, currently offered under the auspices of De Beers, are going to continue because another mining company, Petra, is buying the mines.

❖ INTERPRETATION

The diamond pipeline of de Beers describes the journey of diamonds, during:

- Prospecting and exploration
- Mining and recovery
- Sorting and valuation
- Cutting and polishing
- Jewellery and manufacturing; and finally
- Marketing of the diamonds themselves.

(http://www.debeersgroup.com/debeersweb/Diamond+Industry/The+Four+cs/, www.debeersgroup.com/.../Economics/Case+study+-+Kimberley+Big+Hole+tourism+project.htm, www.debeersgroup.com/.../Diamond+Journey/De+Beers+Global+Operations/Projects/Kimberleys+Big+Hole+Project.htm).

6.2.4.6 Future actions

The local municipality both assists and encourages new businesses in Kimberley. There are big developments and growth in the town. It is believed that the Diamond and Destiny Big Hole tourist attraction will draw tourists from all over the world to the Northern Cape. The Big Hole and its associated attractions have the potential to become a dynamic World Heritage Site of unique and lasting value, forming part of a holistic initiative involving a range of interest groups. It is an asset, which in time could form the hub of a wheel of tourism initiatives branching out all over the Northern Cape. The interpretation facilities can be upgraded at the Big Hole. By attending overseas congresses, benchmarks can be found that will enable compliance with international standards (http://www.thebighole.co.za/Background.htm).

❖ **AWARENESS CAMPAIGNS**

Much has been done already, but much more remains to be done. However, there is a constraint in that there is a lack of funding. De Beers has already spent a great deal of time and money in awareness campaigns through scholarships, scholar vacation projects, etc. One of these campaigns included contracting a local Kimberley artist, Mrs Maggie Newman to paint a series of beautiful paintings depicting the formation of diamonds, kimberlitic volcanic craters and alluvial diamond processes. These paintings were made into a series of posters called "*The Diamond Story*" and they were donated to all schools in the Kimberley region and the basics of diamond geology were explained to the students. De Beers has also organised an annual Career Day coinciding with the "*Take a Girl Child to Work*" initiative. Pupils interested in geology have been given tours of the mines and diamond sorting areas and informed about potential careers in geology. Unfortunately, there is no geology component in the school curriculum. It would be helpful to create a 4x4 trail to encourage the nonprofessional's awareness of geology and the part it plays in work and leisure alike.

6.2.5 CASE STUDY 5 - CRADLE OF HUMANKIND (COH) - INTERVIEW RESULTS

Because neither the manager nor marketing manager was available, a personal interview with a questionnaire was completed with Me. Lindsay Marshall, a palaeo-anthropologist and the curator of Maropeng in the COH, on the 18 September 2008 at Maropeng. Afterwards the Sterkfontein Visitor Centre was visited to make notes and to take photographs.

6.2.5.1 Background and history

The Cradle of Humankind (COH) World Heritage Site (WHS) lies mainly in the Gauteng Province, with a small extension into the neighbouring North-West province, and covers 47 000 hectares of mostly privately owned land, to the north-west of Johannesburg. Its four corners are roughly the towns of Lanseria, Oaktree, Hekpoort and Broederstroom. There are two visitor centres:

1. Sterkfontein: S 26° 1,049′ E 27° 43,763′
2. Maropeng: S 25° 58,746′ E 27° 39,871′

The fossil-bearing caves of the Sterkfontein Valley, near Krugersdorp, are part of the COH WHS. It is the most prolific and accessible fossil hominid site on earth, and about 40% of the world's hominid fossils have been found here. This is where the first adult ape man (Australopithecus africanus) and the famous "*Mrs Ples*" were discovered, as well as the first complete Australopithecus skeleton. Wonder Cave has fantastic stalagmites and stalactites and has been opened to the public (http://www.southafrica.net/index.cfm?sitepageID=14225&CountryProfileID=3).

A schoolboy discovered a skull at Sterkfontein in 1947. It was subsequently described by Dr. Robert Broom as *"Mrs Ples" (Australopithecus africanus)*; a 2.5-million-year-old australopithecine skull which provided proof that *Australopithecus* could be classified as a member of the Hominidae (the family of humans). This established Africa as the Cradle of Humankind. In 2005, Taung (Northern Cape) and Makapan's Cave (Limpopo) were added to the COH. *"Little Foot"* is an almost complete australopithecine skeleton that is around 4.17 million years old. These fossils, both found in the Sterkfontein Caves in the COH, offer much information about how, and under what circumstances, modern humans, Homo sapiens, evolved. Archaeological finds within the COH also include 2-million-year-old stone tools. These are among the oldest tools recorded. At Swartkrans, a collection of about 270 burnt bones tells an important story of a momentous early technological innovation – the ability of the earliest peoples to control fire - more than a million years ago.

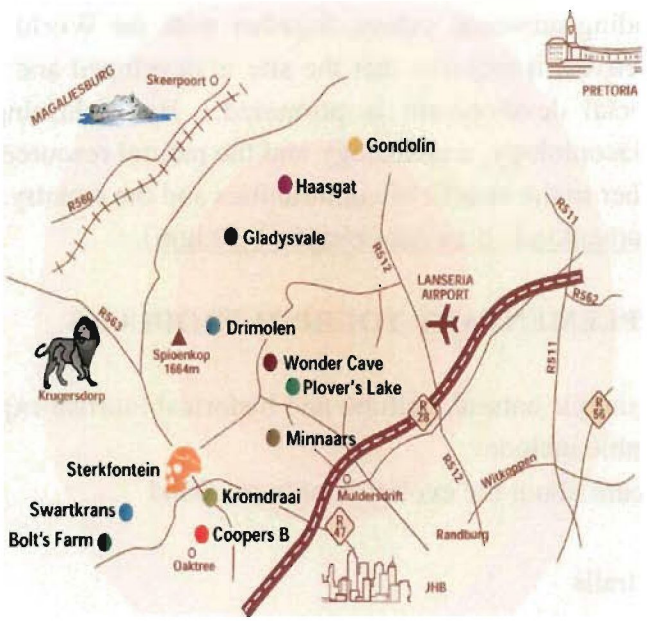


Figure 6.6: Map of the Cradle of Humankind (COH)
(javasript:openwindow'fossilfindsmap.html',430, 570)

❖ GEODIVERSITY, GEOLOGICAL SIGNIFICANCE

The COH site comprises a strip of a dozen dolomitic limestone caves containing the fossilised remains of ancient forms of animals, plants and, most importantly, hominids (that is, members of the human family). Continued erosion on the earth's surface, and dissolution of the dolomite, eventually resulted in shafts forming from the surface of the earth to the caverns below. Bones, stones and plants washed down these shafts into the caves. Animals and hominids fell into the caves, were trapped and died. The bone and plant remains became fossilised and, along with various stones and pebbles, became cemented in a hard mixture called breccia. Embedded in the dolomitic rocks is a rich variety of well-preserved fossilised remains of early pre-humans (hominids), their stone tools, as well as a wide variety of fossils

of plants, animals and pollen. Here can be found the clues to the demography, variability, behaviour, growth and development of early hominids.

The Cradle of Humankind was inscribed on the World Heritage List on 2 December 1999.

❖ GEOCONSERVATION

In 1997, the South African government signed the 1972 UNESCO Convention on the protection, preservation and promotion of the world's natural and cultural heritage so making South Africa eligible to nominate sites of unique international significance. The palaeontology and palaeo-anthropological sites are thus preserved, so that all forms of activities that could lead to the destruction of these sites and their values is avoided and prevented. However, the COH WHS also represents an important opportunity to promote both the site's outstanding universal values, together with the World Heritage Convention. To achieve these objectives, it requires that the site is developed and managed sustainably, and economic and social development is promoted. By enshrining the protection and conservation of the palaeontology, archaeology and the natural resource base, the COH WHS may be developed further to the benefit of communities and the country. (http://www.cradleofhumankind.co.za/docs/chapter1-10.htm).

❖ OTHER, SUPPLEMENTARY TOURISM PRODUCTS

The COH site offers a unique natural, cultural and historical tourism experience. Some of the activities already available include:

- Cave tours to learn about the evolution of humankind
- Game drives
- Mountain bike trails
- Overnight hiking-trails
- Craft rambles
- Adventure activities.

6.2.5.2 Present status

The difference between Maropeng and Sterkfontein Caves is that Sterkfontein Caves consists of a scientific exhibition, a walk through time up to the entrance of the caves, and a tour of the caves. When the caves are exited, there is either a short walk back to the exhibition or a walk along the boardwalks to see where "Mrs Ples" was found. It is an excellent visitor centre.

The storyline of the display begins with the formation of the Earth and ends with an original fossil display:

1. **In the lobby**: Here the visitor can take in the architecture and décor. Attention must be drawn to the manner on which the classical elements – earth, fire, water and air – are reflected in the various aspects of the building. These elements are important in the formation of the planet and they will be experience more hroughout the exhibition.
2. **Descending the ramp and boat ride**: A time-line highlights some of the major events in the Earth's history. The boat ride adventure retraces the various stages in the creation of the Earth through snow, ice, water, and the origin, when it was a ball of molten rock.
3. **The birth of the Cradle**: Here, an audio-visual presentation shows how the earth and its continents were formed millions of years ago. This is followed by an interactive zone where cave formation and evolution as science are introduced.
4. **The path to humanity**: Human evolution is explored through audio-visual displays, graphic panels and life-like recreations of species based on the original fossils and environment. *"The Path to Humanity"* explores human evolution, while models of five hominid types on display: the *Homo florensiensis*, *Homo habilis* and *Homo heidelbergensis* species and the *Australopithecus* and *Paranthropus* genera.

5. **What it means to be human**: The nine characteristics that make humans human are explored, offering links to the modern world and demonstrating the gradual build up of human and environmental interaction over time. 'Sustainability' examines how humanity has modified the environment to suit them, and the danger currently faced, of actively contributing to mankind's own destruction.
6. **Original fossil display**: Original fossils on loan from scientific and educational institutions are periodically on display.

Figure 6.7: View from north of The Tumulus Building Exhibition Centre, Cradle of Humankind (COH)

Maropeng's main attractions include:

- Visitors' centre
- Conference facilities for up to 350 delegates

- Three restaurants
- Luxury boutique hotel with views over a private game farm
- Outdoor 5 000-seat events amphitheatre
- Accommodation for 120 schoolchildren
- Retail food outlets
- Destination retail store
- Visitor information points
- Arts and crafts marketplace
- Observation deck, and
- Ample parking for cars and coaches.

❖ RESOURCE ANALYSES

The R347-million Cradle of Humankind development is an initiative by Blue IQ and the

Gauteng government, and was the first public-private partnership (PPP) of its kind in South Africa. Maropeng a'Afrika Leisure (Pty) Ltd (MAL) manages Maropeng. MAL is the concessionaire in a Public Private Partnership with the Gauteng Provincial Government and the University of the Witwatersrand (WITS). MAL has the responsibility for the design, construction, exhibition installation, operation and maintenance of the Interpretation Centre Complex for the COH WHS. The aim is to develop and manage the world heritage site as a premier tourist destination.

WITS owns the Sterkfontein Caves and it is the major excavator of the Cradle site, while Standard Bank donated 100 hectares of land for Maropeng (www.maropeng.co.za). As previously noted, the COH is the richest hominid fossil site in the world, leading to the primary resources being paleo-anthropological and archaeological resources.

According to the respondent to the questionnaire administered, sustainability is covered in the displays at Maropeng. The COH as a tourist destination applies the sustainability principles of Heritage South Africa who have set the standards. It is known for example, that mining water from the gold mines to the south has an impact on the cave ecology. Environmental indicators are monitored by zoologists. To minimise any environmental effect, Sterkfontein has placed limits on visitor numbers.

❖ HOW SUSTAINABLE GEOTOURISM IS BEING IMPLEMENTED

A printed definition of sustainability was given to the respondent before the interview by e-mail and personally. During the interview, it became clear that sustainability was a concept that was not well understood. The respondent did not give an answer to this question.

❖ SWOT ANALYSIS:

During the personal interviews, using a questionnaire, with Me. Lindsay Marshall much

valuable information was obtained. The SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative when forming an overview of key issues of the COH. Her response was representative of the manager and marketing manager (both were not available at the time). This response was integrated with Internet results and is shown in the results below.

- **STRENGTHS**

  The strengths that were identified were:

  - The World Heritage Site Listing was done with specific focus on its global importance and value in understanding the evolution of human history:
    - Government commitment and support exists for the initiative
    - Local enthusiasm and support for the concept exists
    - Support is available from scientific community.
  - The site is in close proximity to the large Gauteng market (both international and national visitors); it is very accessible given its close proximity to infrastructure and urban settlement
  - There is a relatively stable, ecosystem structure and function although some modification has occurred
  - Integrated development approach at a local level has been undertaken
  - The area is small enough to plan comprehensively and manage intensively
  - Near-natural environment in parts give a strong sense of place - representative of near-natural transition zone between grassland and savannah biomes
  - There is a high species richness especially large ungulate mammals
  - Many key landowners are not economically dependent on income earned from farming
  - There are conference facilities, an excellent website and a hotel available at Maropeng, while
  - Maropeng and Sterkfontein Caves have excellent visitor centres.

- **WEAKNESSES**

  The weaknesses that were identified were:

  - The land ownership is multiple, fragmented and private
  - There is a risk of decline in landowner support and commitment
  - There is inadequate institutional capacity to manage and regulate
  - There are no obvious biophysical boundaries to the area
  - There is a potential for infringement on landowner rights
  - The possibility of enriching 'haves' and bypassing 'have-nots' is an ever-present risk
  - The spatial pattern of current land use poses limitations on the rational zonation and for future development planning
  - There is a risk of viewing the area in isolation of its broader regional and provincial contexts, and not taking externalities into account
  - The distance from the major markets of Pretoria and Johannesburg

- Limitations of the boutique hotel at Maropeng - for big conferences, it is too small, and has not enough beds available; therefore Magaliesburg has to be used to deal with this.

- **OPPORTUNITIES**

The opportunities that were identified were:

- The integration of geotourism into the palaeontology and palaeo-anthropological experience
- Potential to develop a vision that all stakeholders can support
- Potential for further appropriate development with many assets and attractions as a basis
- The possibility of attracting international funding for development of the area;
- Sustainable development with holistic, integrated planning and management
- The possibility of enhancing security of tenure, peace and harmony in the area
- Potential for socio-economic development, job creation and training
- Strengthening of community structures and community representative institutions
- Potential to demonstrate the benefits of implementing good environmental management and development policies arising from biodiversity conservation
- The development of incentives for Best Environmental Practice and Codes of Conduct
- The diversification of economic activity in the area
- Promoting small, medium and micro-sized enterprises (up to 200 employees) (SMME) development
- Community empowerment
- Creation of a vision owned by all for a shared benefit
- Educational development and enhancement
- Community based resource management
- Non Governmental Organisation (NGO) involvement and support
- The demonstration of a "Green" housing project in line with "eco-village" or the on-farm environmental housing concept;
- The creation of a model for an environmentally-aware and proactive way of life for communities
- Cultural development and enhancement
- The possibility to become the premier visitor destination in South Africa.

- **THREATS**

The constraints and threats that were identified were:

- The land use management objectives of private land owners and those of DACEL differ
- The fragmented land ownership and diversity of stakeholder/IAP interests
- Natural disasters, such as fire, flood, drought and seismic activity
- Opportunistic behaviour or development not in keeping with the vision and

objectives of WHS

- Destruction and degradation of the resource base
- The COH WHS is affected by negative impacts of activities outside its boundaries such as peat mining, upstream water abstraction, dewatering of gold mines and contamination - all of which affect water quality - and the water table level which poses a threat to the stability of dolomite areas
- An influx of people into the COH WHS in search of benefits and employment
- Tensions between stakeholders
- Unrealistic expectations
- Government-imposed, short time frames
- Inappropriate development occurring
- Unknown, long term, financial implications for Government (a "*leap of faith approach*") that may not be met in the future
- Dwindling support if expectations not met
- Crime
- Low population base rendering expensive the provision of services
- Destruction or loss of heritage values (cultural and natural) through uncontrolled access to the caves and other non-declared fossil sites
- Incorrect or poor media and publicity
- Deterioration in employer and employee relationships (for example. farmers ploughing up graves, wages, grievances, etc.)
- A general lack of guidelines for the development of subterranean systems and new dig sites
- A lack of codes of conduct for tour operators, businesses and visitors
- A lack of a code of conduct for palaeo-anthropologists within the subterranean system
- The downturn in the economy.

6.6.2.3 Lessons learned

During the interview, it was established that geology was mostly ignored and under-emphasised because the palaeo-anthropological view of the COH was the dominant theme. The role of geology was also not well understood.

❖ STRATEGIC GEOTOURISM DEVELOPMENT PLAN

The aim of the "*Tourism Analysis Report*" was to provide guidance for the development of the COH as a prime tourist destination in Gauteng. In the case of the COH, a very systematic preparatory planning phase was done before mid-1999. In this phase, a number of specialist studies were conducted including archaeology, palaeo-anthropology, geology, hydrology, ecology, land use and infrastructure, state of the environment, tourism and marketing, stakeholder participation, and financial plans. A comprehensive "*Integrated Environment and Conservation Management Plan*" followed later in 1999. This plan articulated a clear

justification for World Heritage Listing. The master planning and implementation of planning was done prior to the application of World Heritage inscription in 1999.

From August 2000 to August 2001, master planning was done to re-confirm the previous planning work, to provide further confirmation and research, and to develop the strategic and implementation plans. The master plans were consolidated into a single report ("*Integrated Report for the Development and Management of the Cradle of Humankind World Heritage Site*" (IECMP)) including:

- Environment and conservation reports
- Land use and infrastructure master plan
- Tourism analysis and spatial plan
- Interpretation network master plan
- Policy document and manual for tenure security and housing development
- Socio-economic study and community benefits plan
- Financial and business plan, and
- Economic impact report

(http://www.cradleofhumankind.co.za/docs/chapter1-10.htm).

The implementation phase began in September 2001 when DACEL published a call in South Africa, the USA and the UK for Expressions of Interest in the design, construction, development and operation of an Interpretation Centre Complex for the Cradle of Humankind World Heritage Site.

Overall, the integrated planning for the COH WHS took four years. The Master Plans that followed from this process laid a solid foundation for implementing development. There was financial support for the COH from the government and private stakeholders. Although the Tourism Analysis Report was intended for tourism only it could also be applied in the case of geotourism.

6.2.5.4 Implementation of sustainability

❖ **APPLY OVERSEAS RESEARCH/EXPERIENCE IN GEOTOURISM DEVELOPMENT**

Overseas research and experience was undertaken in the planning and development stages of the COH by outside experts and consulting agencies. It is important to ensure that all decisions and proposals be made within a broad biophysical and socio-economic context with the explicit objective of ensuring environmental sustainability. To incorporate environmental sustainability issues into different work streams, all technical teams were required to consider sustainability issues in all phases of their work. Suggested sustainability objectives for the COH include:

- Meeting both present and future needs

- Maintaining the productive capacity of natural resources and systems
- Maintaining a balance between human needs and the needs of the ecosystem to maintain the productive capacity. (This acknowledges that there are limits and requirements for balance).

Geological displays should be set up at the old Holcim quarry west of Sterkfontein, Sterkfontein Caves and Maropeng.

The COH "*Tourism Analysis Report*" gave guidance for the development of the COH as a prime tourist destination in Gauteng. To achieve this aim, the objectives that were set included defining the potential visitor volumes to the COH WHS, matching the envisaged demand with appropriate infrastructure, and identifying strategies to enhance the tourist offering in the COH WHS. However, this was not done completely and needs much further investigation and research. The objectives of this master plan included:

- Identifying a variety of facilities for visitor recreation that focus on the inherent tourism assets of the COH WHS with a minimum impact on the natural and cultural environment
- Identifying opportunities that will enhance visitor access and interpretation of the COH WHS
- Identifying opportunities for a diversity of visitor experiences related to the inherent tourism assets of the COH WHS that will have an international and national competitive advantage
- Promoting a consistently high standard of tourism services and facilities that will contribute to the COH WHS's competitive advantage
- Identifying direct opportunities for local community involvement and entrepreneurship
- Promoting socially responsible access to the COH WHS for all South Africans.

❖ SUSTAINABLE GEOTOURISM STRATEGY

In the sustainable geotourism strategy, the management of the fossil sites should be the highest priority and the starting point for development. The fossil-bearing cave deposits are considered to be of outstanding universal value because they encapsulate a superbly preserved record of changes in the faunal population of the area, as well as an invaluable record of the stages in the emergence and evolution of humanity over the past 3.5 million years. These sites represent a primary resource for interpretation. They should be carefully managed and protected in partnership with the landowners.

The management objectives for the paleontological sites, outlined in the DACEL document: "*Cradle of Humankind, Towards a Management Plan*", are:

- To promote access to some of the palaeo-anthropological sites that are easily accessible and to provide information about the scientific significance of these sites to

the general public

- To prevent unauthorised access to sites and to provide adequate protection;
- To promote and co-ordinate research efforts
- To establish the risks associated with the increased use of the palaeo-anthropological sites relating to physical damage, increased carbon-dioxide levels, histoplasmosis, instability and sinkhole formation, and to develop management strategies accordingly
- To protect the undiscovered potential value of the area by, in particular, limiting development of the dolomitic areas through the application of the land use intensity zoning criteria
- To monitor the sites to allow management regimes to be altered if damage is caused.

❖ SUSTAINABLE GEOTOURISM DEVELOPMENT

The IECMP identifies six land-use intensity zones based on spatial environmental sensitivities, current land-uses and conservation importance to the COH WHS (http://www.cradleofhumankind.co.za/docs/PART_ONE.htm). It was divided into five land use zones. This 'natural' based zonation system will help guide development while ensuring the sustainable use of the area. The five land use zones are:

1. Paleontological zone
2. Ridges and wetland
3. Very low to low intensity use
4. Moderate intensity use, and
5. Corridor zones.

Development guidelines for each zone were subsequently formulated to ensure that conservation objectives would be met. The purpose of defining land-use intensity zones is to provide for areas of conservation and opportunity within the COH WHS in keeping with the overall aim of conserving the resources of the area while creating opportunities for increased access. In terms of the zonation system proposed, fossil and cave sites are identified as sensitive areas with respect to the types of infrastructure, activities and visitor numbers that can be allowed at these sites. Interpretative facilities catering for large numbers of visitors would fall into moderate or high intensity zones (http://www.cradleofhumankind.co.za/docs/chapter1-10.htm).

The land use zones were used to develop three tourism zones:

1. The least developed and natural heart of the Site is the core zone. Activities here will be limited to low impact, nature-based tourism such as hikes and trails
2. The core tourism zone that contains most of the primary fossil sites and existing tourist attractions. This zone is the focus for tourist activities and interpretation facilities
3. The most densely populated and cultivated peripheral zone. Activities that will be accommodated here would include guesthouses, and bike and horse trails.

To enhance tourism within the zones, the various elements that make up the COH WHS are roads and infrastructure, information and signs, landscape features and land use.

Digginis (2004:68-69) believes that attracting international and local tourists is one of the distinct advantages of having WHS status. Thus, considerable attention has to be given to establishing a tourism development plan to ensure that tourists are attracted to the site and yet, at the same time, that the environment is conserved. For these reasons, the "*Tourism Master Plan*" was developed. This plan takes into account the unique features of the site and identifies opportunities for tourism development. Tourism activities should be guided and not be prescribed. Primary concerns are cultural authenticity and ecological integrity. The underlying principles of the plan are that:

- Palaeo-anthropological and ecological uniqueness is retained
- That commercial facilities do not impact upon the natural landscape and caves; and that
- Where land use is in conflict with acceptable principles, the owner of the land will have to consider making changes.

The plan identifies two main recreation resource bases in the region, natural (ridges and plains) and cultural (fossils). In summary, it can be stated that "*The area is considered suitable primarily for outdoor activities because of the area's topological and geological characteristics. On the other hand, the cultural component presents the opportunity to develop museums and interpretation facilities that would complement the outdoor experience*".

❖ STAKEHOLDER INVOLVEMENT

There exist private partnerships for Maropeng between the WITS, who owns the land, and the Blue IQ.

❖ NETWORKING

The "*Interpretation Network Master Plan*" (INMP) sets out a conceptual framework for an integrated interpretative network for the COH WHS. It also contains detailed recommendations for each of the components including the Interpretation Centre Complex. This proposal for an interpretative approach at the COH WHS is to leverage the unique beauty and scale of the landscape that makes up the COH WHS. It is indented to achieve this by taking a holistic and integrated approach to developing an interpretative framework. Essentially, the interpretative framework aims to tell the story or stories associated with the site to the visitor in the most dynamic, accessible, exciting, meaningful and engaging way. The landscape that makes up the COH WHS provides a dramatic backdrop and context for the most important story of the new millennium - the story of the origins, evolution and continued survival of humankind (http://www.cradleofhumankind.co.za/docs/part8.htm).

❖ MANAGEMENT OF GEOTOURISM

The objectives of the management plan are aimed at protecting and preserving the scientific, natural and cultural assets of the site, and at managing the site for the benefit of all. In the "*Interpretation Network Master Plan*" (INMP), detailed recommendations for the operation, management and institutional arrangements for the proposed network are given. An implementation strategy and a detailed phased implementation schedule are included.

The Management objectives for the paleontological sites, outlined in the DACEL document, "*Cradle of Humankind, Towards a Management Plan*", are:

- To promote access to some of the palaeo-anthropological sites which are easily accessible and to provide information about the scientific significance of these sites to the general public
- To prevent unauthorised access to sites and provide adequate protection
- To promote and co-ordinate research efforts
- To establish the risks associated with the increased use of the palaeo-anthropological sites relating to physical damage, increased carbon-dioxide levels, histoplasmosis, instability and sinkhole formation, and to develop management strategies accordingly
- To protect the undiscovered potential value of the area by, in particular, limiting development of the dolomitic areas through the application of the land use intensity zoning criteria
- To monitor sites to allow management regimes to be altered if damage is caused.

The management objectives for the archaeological sites are:

- To promote controlled access to the sites for the general public along trails and provide information about sites
- To promote research
- To protect the resource from scavenging by unauthorised persons
- To monitor the sites to allow management regimes to be altered if damage is caused.

❖ MARKETING

The Blue IQ is responsible for the marketing of the whole COH. The promotion of tourism and education is an important objective for the management of the COH WHS as it relates directly to the promotion of conservation and to the economic development of the area. The establishment of excellent facilities for interpretation, research and education play a vital role in leveraging both the economic and social benefits. Demand levels do not increase automatically because of WHS status, but increase rather due to the development of attractions and interpretation centres, underpinned by appropriate marketing.

6.2.5.5 Benefits

❖ **CONSERVING NATURAL HERITAGE**

Digginis (2004:65) believes that the main benefits of World Heritage Site status is the preservation of a valuable national asset for future generations. Thus, "*Gaining WHS status also serves as a catalyst in raising people's awareness of the need to preserve the local or national heritage. A sense of pride is developed in a nation when people realise that their culture or natural heritage is recognised internationally as having "outstanding value"*. A crucial benefit is the access that is gained to the World Heritage Fund. Developing countries in particular benefit from this fund. Financial assistance is made annually for the development and maintenance of the site, and on an *ad hoc* basis to help finance specific projects and training. Emergency assistance can be provided in the event of a natural or human-made disaster that severely damages the site.

Creating opportunities for the WHS to work with other tourism sectors must be addressed in the future.

❖ **ENHANCING THE VISITOR EXPERIENCE**

The area's natural and cultural resources are not sufficient of themselves to generate a high level of economic and tourism activity. These resources must be packaged to create a desirable visitor product. To this end, it is recommended that:

- The COH WHS be managed as a single entity to enhance the quality and integration of the visitor experience
- The area should offer the visitor a holistic tourism experience catering to different markets and varied levels of interest, as well as providing access for the elderly and disabled
- Visitor facilities and programmed services be planned and developed in such a way that responsible access is promoted and that provides exciting, enlightening and entertaining opportunities for visitors to explore the area and appreciate its significance; and that
- Opportunities for learning are maximized.

It is also noted that the quality of visitors' experiences may be affected by:

1. Poor standards of facilities and services, and
2. Lack of information or opportunities for understanding the significance of the COH WHS.

The success of the COH WHS is dependent on providing a high quality visitor experience. This will depend on high quality interpretation by well-trained, competent guides supported by well-planned interpretative materials and facilities.

To develop well-trained competent guides, it is recommended that:

- Trained guides from the local community are used to enhance the quality and interactive experience of visitors
- Investment in the training of guiding staff is essential
- A training strategy that incorporates interaction with the scientific community be implemented
- Tour guides be subject to continuous assessment and offered opportunities to upgrade their knowledge and skills on an continual basis
- Provision should be made to accommodate the requirements of more knowledgeable visitors with particular interests in specific sites.

❖ GEO-EDUCATION

There are two excellent visitor centres, Maropeng and Sterkfontein. The Interpretation Centre (IC) is conceived as a single institution comprising the two focused units, with one at Maropeng and the other at the Sterkfontein Caves. Together, they meet the key objectives of the management plan and have sufficient critical mass to enable cross-subsidisation of educational and scientific activity through income generated from tourism activities. It is important that the grouping of these units and their development as a single entity provides an opportunity to develop a unique and substantial attraction in the area. Here every visitor will experience and learn about the COH as the richest hominid fossil site in the world.

The role of conservation of these assets will be practically illustrated. At Sterkfontein, a cave can be visited together with the various exhibitions in the visitor centre. At Maropeng, the focus is rather on exploring humanity's history in the Tumulus building. It is the first of its kind in the world, and was designed to look like an ancient burial mound from the front and, when exiting on the other side, a very modern structure from the rear. The architecture aims to symbolise the journey through time from one's ancient origins to today. These two centres together enable a holistic view of the COH WHS.

At present, there is a network of interpretative facilities, the Interpretative Network (IN). It collectively creates a critical mass of interest. A holistic, educational and recreational, COH WHS visitor experience was developed. The following network components were envisaged:

- A primary interpretation centre, with focused exhibitions on two sites, namely: Maropeng and Sterkfontein Caves
- Site specific interpretation facilities, and
- Visitor information points.

❖ INTERPRETATION

Interpretation and orientation play a major role in facilitating visitor management and access. The aim of interpretation is to aid the visitor in discovering and understanding the area and

encouraging learning to ultimately enhance the visitor experience. In developing interpretation material and facilities it should be noted that:

- The level of knowledge of most visitors is limited. Material should therefore be appropriate for visitors with differing levels of knowledge, of education and of different ages
- Interpretation should be informative, based on sound academic research, and aim to increase respect and understanding of the COH WHS. It should not be taxing mentally or ideologically, nor should it be negative
- To encourage repeat visits and remain contemporary, interpretation should be continually updated and amended
- Interpretation should cover a broad story line and not be restricted to the paleontological importance of the site. Different sites, of course, may have different interpretative themes
- All interpretation should have an implicit conservation message to highlight the importance of sustainability
- Interpretation throughout the site should be co-ordinated to ensure that the message being portrayed is consistent, that there is a degree of integration and that duplication of the message is minimised. It is also important to ensure that information is not one-sided and that the whole picture is provided
- Trained guides from the local community should be used to enhance the quality and interactive experience of visitors.

The proposed interpretation and orientation facilities include:

- Museum/primary interpretation centre
- Orientation centre/s
- Site-specific interpretation facilities
- A research and education centre.

6.5.2.6 Future actions

❖ **DEVELOP GEOSITES, GEOPARKS**

The researcher suggests that geosites should be developed to emphasise the role of geology and that the COH should become a UNESCO geopark. This is an option for the future but this possibility should be discussed with the management of the COH.

❖ **BETTER INTERPRETATION FACILITIES**

It was also suggested that that secondary orientation centres be located at key attractions and entry points to the COH WHS, with separate entrances from the primary interpretation centre and museum. Having a somewhat different purpose to Interpretation Centres, Orientation centres are intended to provide information to visitors about the range of activities and

facilities available within the COH WHS so that they can plan their visit. Orientation centres should provide information about:

- The COH WHS code of conduct for visitors
- The extent and significance of the COH WHS
- Visitor attractions in the COH WHS
- Availability of local services and attractions in the surrounding area
- The need for conservation in the area.

It was further suggested that Visitor Information Points (VIPs) should be located at all major gateways to the COH WHS that would serve to provide information to people passing through or entering the area, and to direct them to the interpretative facilities and other attractions. VIPs will vary in size and content and may include:

- Information boards positioned strategically so that visitors can pull off the road alongside them;
- Information kiosks/desks in existing facilities; and
- Exhibitions, information counters and sales areas linked to new or existing tourism information points.

(http://www.cradleofhumankind.co.za/docs/PART_ONE.htm,
http://www.cradleofhumankind.co.za/docs/six.htm,
http://www.cradleofhumankind.co.za/docs/part8.htm,
http://www.cradleofhumankind.co.za/docs/part_11.htm)

In summary, the present interpretation facilities should be upgraded. An awareness campaign about geotourism should be undertaken to let people know what geotourism is.

6.2.6 CASE STUDY 6 – GEOSCIENCE MUSEUM, PRETORIA - INTERVIEW RESULTS

A personal interview with a questionnaire was done with Mr. Horst Windisch, past president and patron of the Federation of Southern African Gem and Mineralogical Societies (FOSAGEMS) on the 8 July 2008 in Pretoria. Mr. Danie Barnardo, head of the Information Section, Council for Geoscience (CGS), was interviewed a month later on the 8 August 2008 in Pretoria. Subsequently, Mrs. Anke Raath, temporary curator of the Geoscience Museum (GM), was interviewed on the 11 August 2008, also in Pretoria.

6.2.6.1 Background and history

The Geoscience Museum is situated in the Transvaal Museum building, across from the City Hall, in Paul Kruger Street, Pretoria. Secure parking is available in the City Hall grounds. The space is rented from the Transvaal Museum on a contractual basis. Visiting hours are from 8:00 am to 4:00 pm, daily. The Museum is closed to the public only on Easter Friday and Christmas Day.

The CGS is one of the National Science Councils of South Africa, and is the legal successor to the Geological Survey of South Africa, which itself was formed in 1912 by the amalgamation of three former Surveys, the oldest of which, the Geological Commission of the Cape of Good Hope, was founded in 1895. The Geoscience Act, Act 100 of 1993, established the CGS in its present form. Today, the Council is a modern institution, boasting excellent facilities and expertise. The mission of the CGS is to provide expert earth-science information and services to improve the management of natural resources and the environment for a better quality of life for all (www.platinummetalsreview.com/dynamic/organisation/view/11463). The CGS is also mandated by an act of Parliament, the Geoscience Act, 1993, to conserve and curate the national geological collection. The CGS is further responsible for providing geological earth science knowledge to South Africa. This knowledge is vital to the utilisation of mineral resources, and other earth based and environmental projects (www.geoscience.org.za/index.php?option=com_content&task=view&id=94&Itemid=283).

The GM provides educational facilities and information to scholars, tourists and members of the public in the form of displays, rock-, mineral- and fossil-identification services, brochures and worksheets. The Museum's gem, mineral, meteorite and rock collection is recognised as one of the best of its kind in Africa. The collection is available for both research and viewing purposes. Multi-lingual Geoscience Museum security and education staff is always available in the exhibition halls to provide help and information about the displays. Guided tours by appointment are also available - especially for schools - and include display-based worksheets. Bookings for such guided tours may be made through the Transvaal Museum Education Department, or by phoning the Geoscience Museum directly. Specialist earth sciences information (including geochemical analyses of geological samples) is available at the Laboratory based at the CGS Head Office in Silverton. From time to time, special exhibits will be displayed. In collaboration with the Pretoria Gem and Mineral Club, activities such as specialised lectures, field trips and workshops can be arranged.

The Staatsmuseum (State Museum) of the ZAR was founded on 1 December 1892. This is now known as the Transvaal Museum, a natural history museum in Pretoria. The Transvaal Museum was amalgamated with the Pretoria-based National Cultural History Museum (also called the African Window) and the South African National Museum for Military History (situated in Johannesburg) on 1 April 1999 to form the Northern Flagship Institution (NFI).

Dixon (1992:57-77) says that in 1897 (by) a declaration in the Staats-Almanak of the Zuid-Afrikaansche Republiek, the establishment of a new section of the Department of Mines, the Geological Survey, was established. Its task was to "*put together a collection of minerals and rocks, in particular of the South African Republic and other South African States, for scientific investigations and public displays in the Museum of the Geological Survey*". The first collections were housed in the State Gymnasium, on the corner of Bosman and Vermeulen streets, where the Post Office Headquarters used to be. The new Museum Building (Transvaal Museum) was completed in 1913 for natural history collections. Two

wings were added in 1990 to the north and south of the main building. A full-time artist designs and plans the exhibitions and at present, she is the acting curator. Two new posts were recently created, that of curator, and that of a geoscientist, to look after the collections. The previous president of the Federation of FOSAGEMS is working on a voluntary basis at the GM. Marketing of the GM is now done by the CGS.

❖ GEODIVERSITY, GEOLOGICAL SIGNIFICANCE

The GM has one of the largest mineral collections in Africa, with over 9 000 specimens on display, out of approximately 26 000 specimens. Also on display is a piece of moon-rock, one of the biggest selection of South African meteorites and an extensive display of vital economic minerals. Other GM highlights include a display of the GM gemstone collection with some of the best gemstones in the world, together with models of well-known gemstones. A systematic mineral collection, displayed according to Dana's system of mineralogy, is one of the latest additions.

The palaeontological collection of the Council for Geoscience is a large, valuable and unique collection. Highlights include some of the best Karoo Supergroup (Permo-Triassic) mammal-like reptile and ray-finned fish fossils in the world. This collection, too, is available for research and viewing purposes. A new display exhibiting highlights of the collection was planned for early 2009.

The information kiosks plan to provide a unique, hands-on introduction to the Universe, the Solar System, and the Earth and its scientific secrets, including mineral and fossils – but they were not working at the time the research was undertaken. Plasma touch screens with geological information will be used in the future. A new database was recently completed. Plans have been made for every specimen in the collections to be photographed and that information will then be made available on the Internet. The latest addition to the Geoscience Museum displays is the O'Okiep collection, donated by Professor Emeritus T. Clifford of the University of the Witwatersrand.

The GM has hosted exhibitions from Taiwan and Russia in recent history.

❖ GEOCONSERVATION

One of the respondents (Windisch) noted that geoconservation was not really part of the museum's activities. The fact that minerals, geological specimens and fossil are conserved in the GM is itself a sign of geoconservation. If this were not the case, some of these specimens would have landed up in a crusher and would thereafter be lost to society. It was mentioned that some of the private collectors of minerals and geological specimens have some of the meteorites in the land – but this is not generally known. Years ago, it was proposed to conserve South Africa's outstanding mineral specimens by legislation, and that they should not be collected, but this proposal appears to be impractical

Windisch (2007:2-3, 6) notes that geoconservation is "*the action of conserving, preservation from destructive influence, decay or damage*" and collecting is "*to gather into one place or group or to make a collection of specimens*". Thus, collecting is a form of conservation – combating destruction. Collecting is a method of conservation because:

- Donations and acquisitions are held by Museums
- Teaching material is held at Universities
- If not collected – the material's final repository may be the crushers
- Restricted specimens in South Africa – gold, diamonds, fossils, meteorites – may not be seen or handled except *in situ*
- Restrictions exist in Namibia and Zimbabwe, for example, where export permits may be required.

The role of the amateur collector in the field of geology and mineralogy is:

- As geologists and mineralogists locating old deposits
- Many finds of minerals found by amateurs are of species not previously recorded in South Africa. This is because professional mineralogists are more interested in the economics of the deposit, whereas amateur mineralogists are more interested in the mineral species at a deposit
- Providing help in advancing the geological sciences in the country and the world.
- Providing data to professional organisations, that they might not otherwise have been aware of, such as the mineralogy
- Creating collections for the amateur's own pleasure - and often that of others as well.

❖ OTHER, SUPPLEMENTARY TOURISM PRODUCTS

The Museum Park is supported by the Pretoria City Council, to group together other museums near the of the Geoscience museum, and is administered by the NFI. It is a non-profit organisation. Other supplementary tourism products are:

- Transvaal Museum (Museum of Natural History)
- Geoscience Museum
- Melrose House Museum
- Science and Technology Museum
- National Cultural History Museum
- Sammy Marks Museum
- Kruger House Museum
- Voortrekker Monument
- Pioneer Open Air Museum
- Pretoria Art Museum
- Anton van Wouw House
- Pierneef Museum.

6.2.6.2 Present status

❖ RESOURCE ANALYSES

During the interviews, it was established that:

- The museum was a good building with well-preserved collections and the correct people to do the job
- The museum contains good and well-preserved geological collections
- The museum fulfils social-educational responsibilities
- The museum is funded by the Council for Geoscience, which is partially funded by the State.

❖ HOW IS SUSTAINABLE GEOTOURISM BEING IMPLEMENTED?

A printed-out definition of sustainability was given to every respondent before the interview, either by e-mail or personally. During the interviews, it became clear that sustainability was a concept that was not well understood. The respondents did not give an answer.

❖ SWOT ANALYSIS:

During the personal interviews with Mr. Horst Windisch, Mr. Danie Barnardo and Mrs. Anke Raath, very valuable information was obtained. The SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) proved to be very informative when compiling an overview of key issues at the Geoscience museum. Not every person gave the same answers; so their responses were grouped together and were then integrated in the results below.

- **STRENGTHS**

  The strengths that were identified were:

  - The museum has one of the biggest geological collections in Africa – it is a depository of minerals of SA
  - Good exhibits, well presented (particularly the economic minerals) exist
  - There are large showcases that allow ample room
  - The managed collections are properly documented
  - The conservation aspect is collecting
  - There is a good administration by CGS – two new posts of curator and collections manager were created to increase effectiveness
  - Excellent educational activities are offered
  - The Moon Rock specimen is exhibited.

- **WEAKNESSES**

  The weaknesses that were identified were:

  - The Museum does not have its own building – it is still housed in the

Transvaal Museum, and only a few people know that it is administered by the CGS

- Very little promotion and marketing is undertaken
- Not enough finance is available
- Too few staff – although the additional staff members will help solve this problem
- Space is rented on contract from the Transvaal Museum
- No geology-specific museum shop with promotional material, books, videos, and geological specimens exists
- The museum restaurant is poorly sited
- Poor planning is proven by the absence of a strategic plan
- No SWOT analysis of the museum had been undertaken
- No business plans were studied or implemented
- The NFI does not have enough capital available for upgrading of facilities.

- **OPPORTUNITIES**

The opportunities that were identified were:

- South Africa has a rich and unique geological mining history, even if too little is known of it. So the economic collection should be re-vamped
- Plan, formulate, implement and evaluate a strategic management plan;
- Complete a resource analysis
- Upgrade the collections
- Have more exhibits in the building
- Institute moving exhibits
- Begin an own geology-focussed, strategically placed, souvenir and curio museum shop.

- **THREATS**

The constraints that were identified were:

- Too little financial support is available
- The potential closure of the museum
- Because of the physical location of the building, it was unsafe to walk outside the building in the late afternoon. The visiting hours had been adjusted from 17:00 to 16:00 to increase the security of visitors
- There is little finance available because:
  - No teaching of geology at schools is done
  - Not enough promotion is done
  - The Museum obtains money from the State and this might not be forthcoming in the future.
- The downturn of the economy.

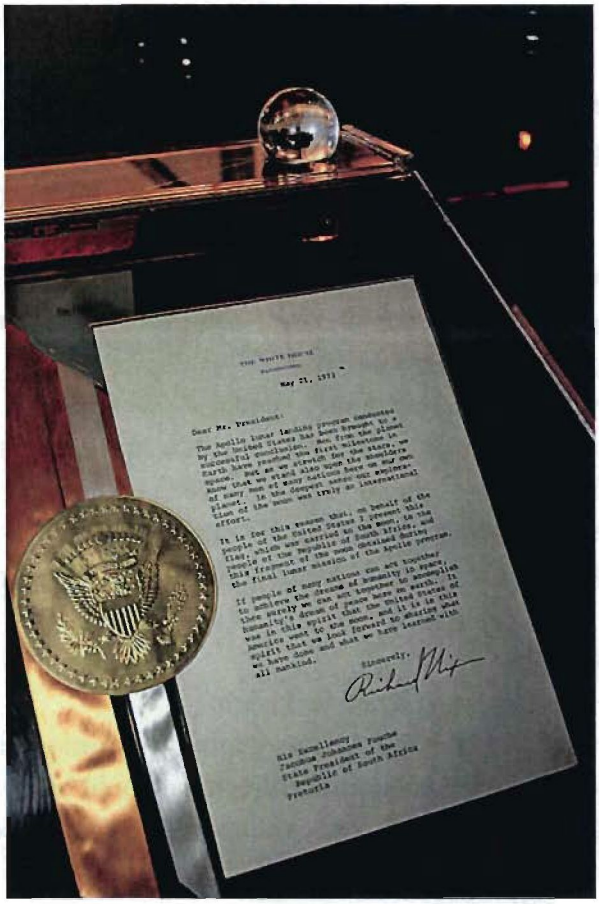


Figure 6.8: Exhibition of the letter by ex-president Richard Nixon (USA), to present the flag which was carried to the moon during the Apollo Lunar Landing Program (1973) to South Africa, Geoscience Museum, Pretoria

6.2.6.3 Lessons learned

At present, there is little financial support from Government, the local municipality or mining/financial companies. The South African Resources Agency (SAHRA) has a very important role to play – but to date heritage has been taken as meaning cultural heritage, even though they are supposed to give support and guidance when planning new ventures such as geosite development.

6.2.6.4 Implementation of sustainability

❖ **STAKEHOLDER INVOLVEMENT**

The various stakeholders are listed below:

- Department of Mineral and Energy Affairs (DME)
- Department of Science and Technology (DST) – some of the museums fall under them,

- Department of Arts and Culture (DAC) – some of the museums fall under them, that is, NFI, Iziko
- South African Resources Heritage Agency (SAHRA). In 2007, the Annual Conference was held at the Cradle of Humankind
- South African Museums Association (SAMA)
- Museum Park
- Universities
- Gemmologists
- Volunteers are not available – although there is a need for them.

❖ NETWORKING

Networking should be done with museum associations, universities, gemmologists and the tourism sector in Pretoria so that the networks can be improved and so they can become more fruitful.

❖ SUSTAINABLE GEOTOURISM STRATEGY

There is little knowledge of geotourism, and this should be addressed. Furthermore, no strategic management plan exists regarding the development of geotourism. In the immediate area of the museum, there is an abundance of other museums that are managed by the Museum Park in Pretoria.

During the planning, management, marketing of a strategic plan particular attention should be given to the following:

- There is no bookshop to sell pamphlets and information about the museum
- The restaurant facilities poor and improvement is necessary
- There are no marketing, promotion or TV programming about the activities of the museum.

❖ MANAGEMENT OF GEOSITES

The GM can be regarded as a place of geological interest, and can thus be classified as a geosite. The geological collections are managed *par excellence*.

❖ MARKETING

Marketing is now being undertaken by the CGS. Even so, very little marketing is currently being done. Promotional material should include geological maps, books, videos, posters, and geological specimens. Marketing should also be done at the international airports in Johannesburg, Cape Town and Durban. Audio tours in modern languages similar to that at the Origin Museum, University of the Witwatersrand, should be initiated. To make people

aware of geotourism, the collections should be explained with pamphlets, articles and TV programming.

6.2.6.5 Benefits

Conservation and education is just one of the tasks of the museum. A mandate from Parliament exists to conserve and curate our natural geological collections. Tourism operators arrange visits to the GM. Overseas tourist arrive in groups or as individuals. The Geoscience Museum is internationally known. Therefore, opportunities can be created to work with other tourism sectors for a mutual advantage.

❖ **ENHANCING VISITOR EXPERIENCE**

To enhance the visitor experience, the following aspects of geology are discussed when explaining geology to schools and other visitors:

- The Solar System and planet Earth
- The Moon Rock
- The age of the Earth
- Minerals from volcanoes
- Rock types and continental drift
- African fossils
- Tswaing Meteorite Crater and meteorites
- South Africa's mineral wealth
- South African minerals and people
- Gold is a metal of kings and queens
- The world-famous Witwatersrand Goldfields
- Diamonds - but this is probably not emphasised enough
- What is a mineral?
- How minerals are identified?
- What is a crystal?
- What are gemstones? and
- People and gemstones.

A museum shop is an absolute necessity further to enhance the visitor experience. More activities and "*action*" in the museum are necessary. A bookshop with appropriate promotional material will enhance the visitor experience before and after a tour. Much can be learned from a few mining museums in Germany:

- Das Deutsches Bergbau-Museum (German Mining Museum) in Bochum (Germany)
- Das Deutsche Schieferbergwerk Museum (German Slate museum) in Mayen (Germany)
- Das Deutsche Vulkan-Museum (German Volcano Museum) in Mendig (Germany)
- Roman Mining Museum in Kretz (Germany).

❖ **GEO-EDUCATION**

South Africa lags behind much of the rest of the world. This is not good enough and more education has to be done. Geo-education is mostly geared towards schools. School visits form an important part of educating learners about geology. This type of visit should be extended to the nonprofessional. There is a lack of labour at the museum– therefore volunteers should be sought.

❖ **INTERPRETATION**

Interpretation must be structured in such a way so that the nonprofessional will understand it. With possible new collections in the future, there might be better interpretation.

6.2.6.6 Future actions

At present, no geoparks with museums as a part of their infrastructure exist in the country. This short-coming should be seriously considered when a geopark is planned for the Pretoria area. Not enough research is being undertaken by the Geoconservation and Geotourism Committee of GSSA – there is no planning currently regarding the development of geosites and geoparks.

Better interpretation facilities can be expanded because the CGS has six short videos. Audio presentations should be produced. Books, posters, maps, CD's, videos, slideshows, postcards and fabricated items should all be part of an awareness campaign. Upgrade the CGS website - the museum section should be a separate one.

Only geo-excursions for geologists have been undertaken so far – these are not for the non-professionals. Conferences and congresses overseas on the topics of geotourism, geoparks and museums should be attended for the geology museum staff to remain well informed of the latest developments for later implementation in the museum. The Department of Tourism and the Environment (DEAT) should be involved in the activities of the museum to a much greater extent.

6.3 CONCLUSION

The conclusions that were drawn will be grouped as general criteria of lessons learned and of the implementation of sustainability.

6.3.1 GENERAL CONCLUSIONS

General conclusions from the case studies are given below:

- Four of the case studies were located in protected areas

- The Big Hole Diamond Theme Park (Kimberley) and the Geoscience Museum (Pretoria) are located in an area/building and both of them are protected because they have specific visiting hours
- The case studies were representative of geosites/areas in South Africa. They cover virtually all aspects of geotourism - in a National Park, a gold mining heritage town, a visitor gold mine, a diamond theme park, cave systems developed as a World Heritage Site for anthropologic reasons and a geological museum
- The new concepts of geodiversity (instead of geology), geoheritage, geotourism and geoconservation were introduced, and explained to the respondents. Brochures about typical geotourism activities in Europe were also shown to illustrate the meanings of the terms. This gave everyone an understanding of what geotourism means. The same methods were applied in every case study with regard to geotourism
- Every case study had sufficient supplementary products to complement geotourism in future
- Every case study had a good website and infrastructure
- The SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) was a very useful tool to form an overview of key issues to be used in strategic plans, including business plans. The present strengths and weaknesses of the situation and future possibilities for opportunities and threats were identified. The analysis also helped to articulate issues that had not come out in other ways. The weaknesses and threats can become strengths and opportunities if properly addressed. A SWOT analysis was done for all the six case studies. Not even one sustainable geotourism strategy exists, although Kimberley's Big Hole had a limited-focus undertaking in this area.. The SWOT analysis proved to be the most valuable resource from the case studies. It will serve as a basis to be used as guidelines for future planning, development, management and marketing for geotourism in the country. The weakest point was that geotourism is a new concept that was not being implemented as very few people had knowledge of it
- Benefits that were recognised during the interviews are that geoconservation, interpretation, geo-education and the visitor experience can successfully be used to make people more aware about the importance of geology and geodiversity
- It became clear that future actions must be to develop geosites and geoparks with a well-prepared management plan for geotourism. However, moving for WHS Listing should be treated with caution as in South Africa such proposals are often seen as being very politically motivated.

6.3.2 CRITERIA OF LESSONS LEARNED

The criteria of lessons that were learned are given below:

- **Little/no knowledge of geotourism**

During the interviews with all the respondents it became clear that in all cases the main problem was that there was little or no knowledge of geotourism. After explaining the

concept to them, the respondents had a better idea of what it was about and how it could be used for the socio-economic benefit of the area/place and geo-education of the nonprofessional. Therefore, education is vital. School groups should be informed with hands-on displays about geotourism. Books and brochures must supplement this experience. Schoolchildren were fascinated by rocks, the mining equipment and the small museum at Kromdraai. In the COH, it was established that geology was not greatly emphasised because the palaeo-anthropological view of the WHS was the dominant theme. The role of geology was also not well understood.

- **Policy/strategic geotourism development plan**

No strategic management plan for geosites existed in most cases and this should be addressed in future. The planning, management and marketing was exceptional, however, for the new Visitor's Centre at the Big Hole in Kimberley and the COH:
Kimberley is a new and emerging business. At present it is a world class diamond experience destination

  - Of all the case studies, the COH was the best example where exceptionally good planning provided guidance for the development of the COH as a prime tourist destination in Gauteng in the "*Tourism Analysis Report*". The planning process started with a very systematic preparatory planning phase before mid-1999 where a number of specialist studies were formulated. A comprehensive "*Integrated Environment and Conservation Management Plan*" followed in1999. This plan articulated a clear justification for World Heritage listing. The master plans were consolidated into a single report "*Integrated Report for the Development and Management of the Cradle of Humankind World Heritage Site*". The integrated planning for the COH WHS altogether took four years. Although the Tourism Analysis Report was intended for tourism only, it can also be applied to the case of geotourism.

- **Financial support from government, local municipalities, mining/financial companies**
- **Geotourism investment**
  De Beers invested R50 million for the renovation and extension of Big Hole in Kimberley. There was financial support for the COH from the government and private stakeholders where the Cradle of Humankind development cost R347-million. In the rest of the cases, investment is sorely needed. Little financial support from Government, local municipalities, mining or financial houses was given at the other case studies. Under-capitalisation was a problem in all the cases
- **Geoconservation legislation**
  At present, there is no geoconservation legislation in South Africa and this should be addressed in future.

6.3.3 IMPLEMENTATION OF SUSTAINABILITY

Before the interviews, a print out offering a definition of sustainability was given to the

respondent either by e-mail or personally. During the interviews, because the respondents did not give an answer, it became clear that sustainability was a concept that was not well understood. The concept of sustainability appears relatively unknown because it was a virtually unknown concept to the respondents. Therefore, no conclusions could be drawn from the interviews. Simply, the basics of sustainability are not understood. Thus, training is necessary so the concept can be implemented in future. Nevertheless, to market the concept will require a great effort.

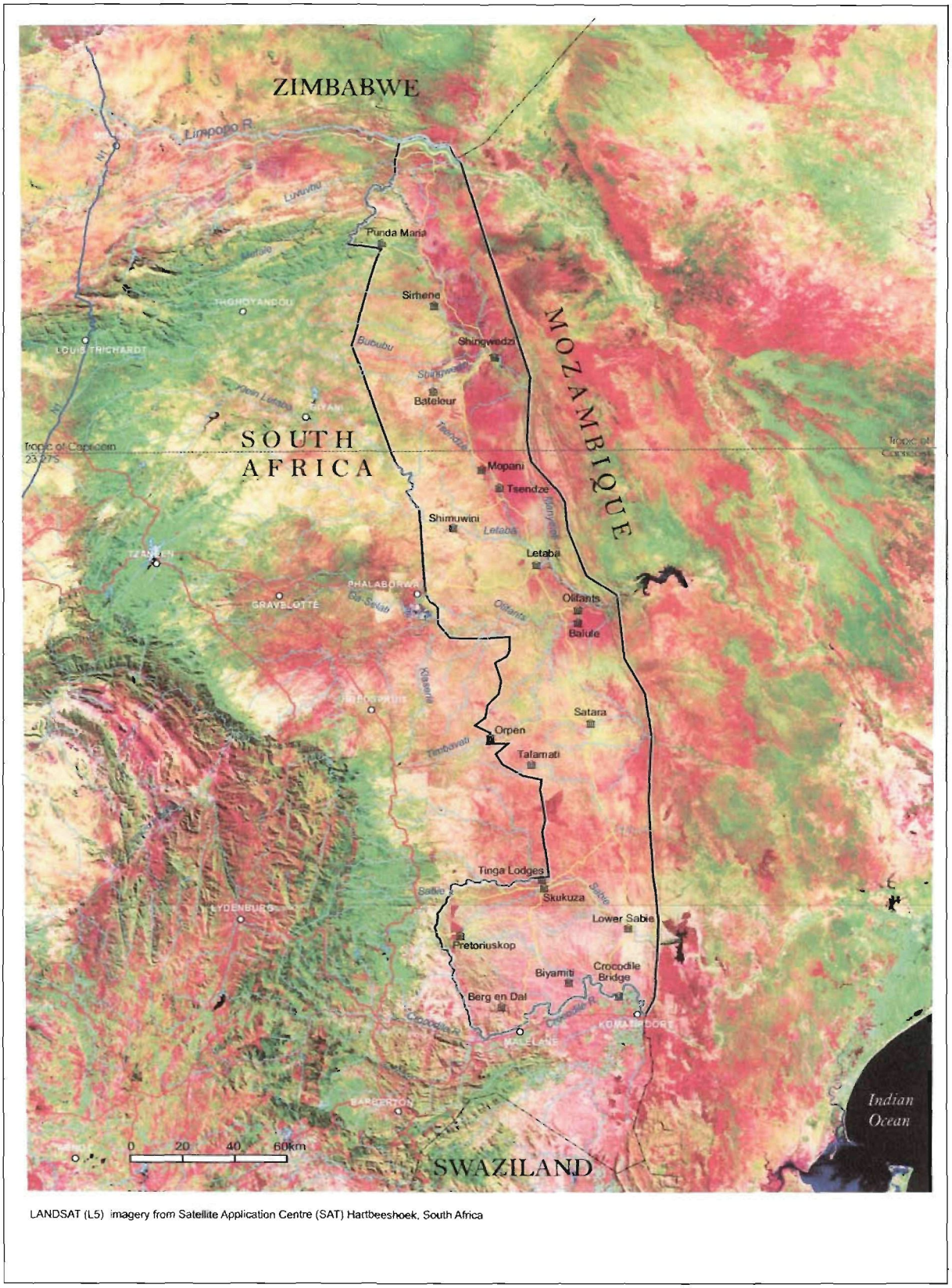
The following was observed with regard to the implementation of sustainability:

- Overseas research and experience in geotourism development is necessary but the principle of sustainability is not well understood in a third world country. The layman is not aware and does not has a knowledge of geotourism
- The enhancement and integration of economic, social and environmental principles is a prerequisite
- Even with a well-prepared, sustainable geotourism strategy, sustainable geotourism development will be a new challenge for all the geosites/areas
- In all the cases, there were sufficient stakeholders. Much more can be done with them so that they all work together by means of networking for mutual advantage.
- Management of geosites should be done according to business management practices and principles
- Geotourism was not part of the existing management plans. Greater awareness and better knowledge of geotourism must be sought
- Not enough marketing has been done so that the nonprofessional understands the concept of geotourism and its benefits.

NOTE:

Figure 6.9: LANDSAT image of the Kruger National Park and environment (see page 315)
Figure 6.10: Topography of the Kruger National Park (see page 316)
Figure 6.11: Rainfall of the Kruger National park (see page 317)
Figure 6.12: The geology and geosites of the Kruger National Park (see page 318)
Figure 6.13: Soils of the Kruger National Park (see page 319)
Figure 6.14: Vegetation of the Kruger National Park (see page 320)
Figure 6.15: Ecozones of the Kruger National Park (see page 321)
Figure 6.16: Geosites in the Kruger National Park (see page 322)

These figures are still being drawn and are in the process of change (July 2009) and represent aspects of the case study of the KNP.



LANDSAT (L5) imagery from Satellite Application Centre (SAT) Hartbeeshoek, South Africa

Figure 6.9: LANDSAT image of the Kruger National Park and environment

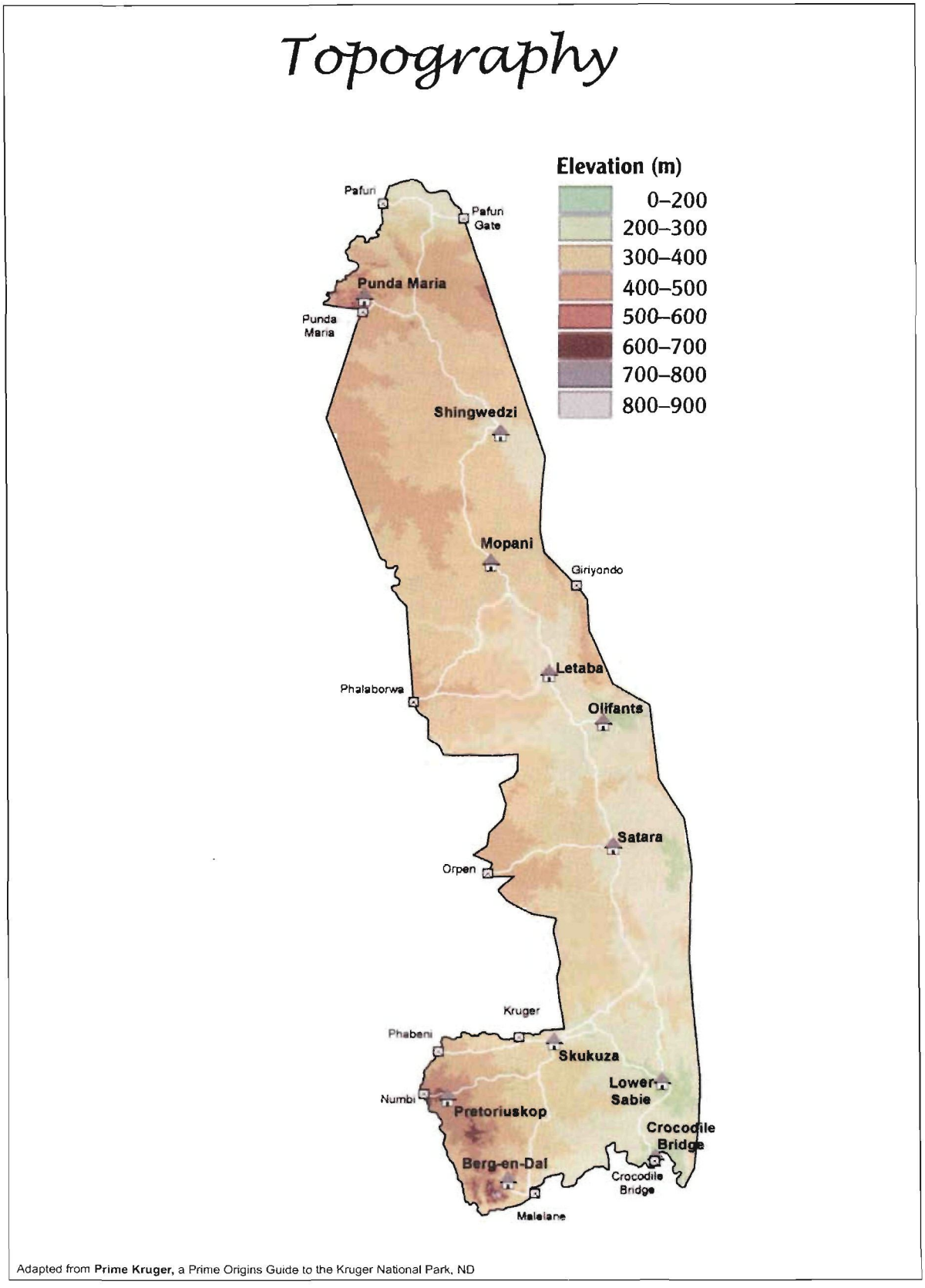


Figure 6.10: Topography of the Kruger National Park

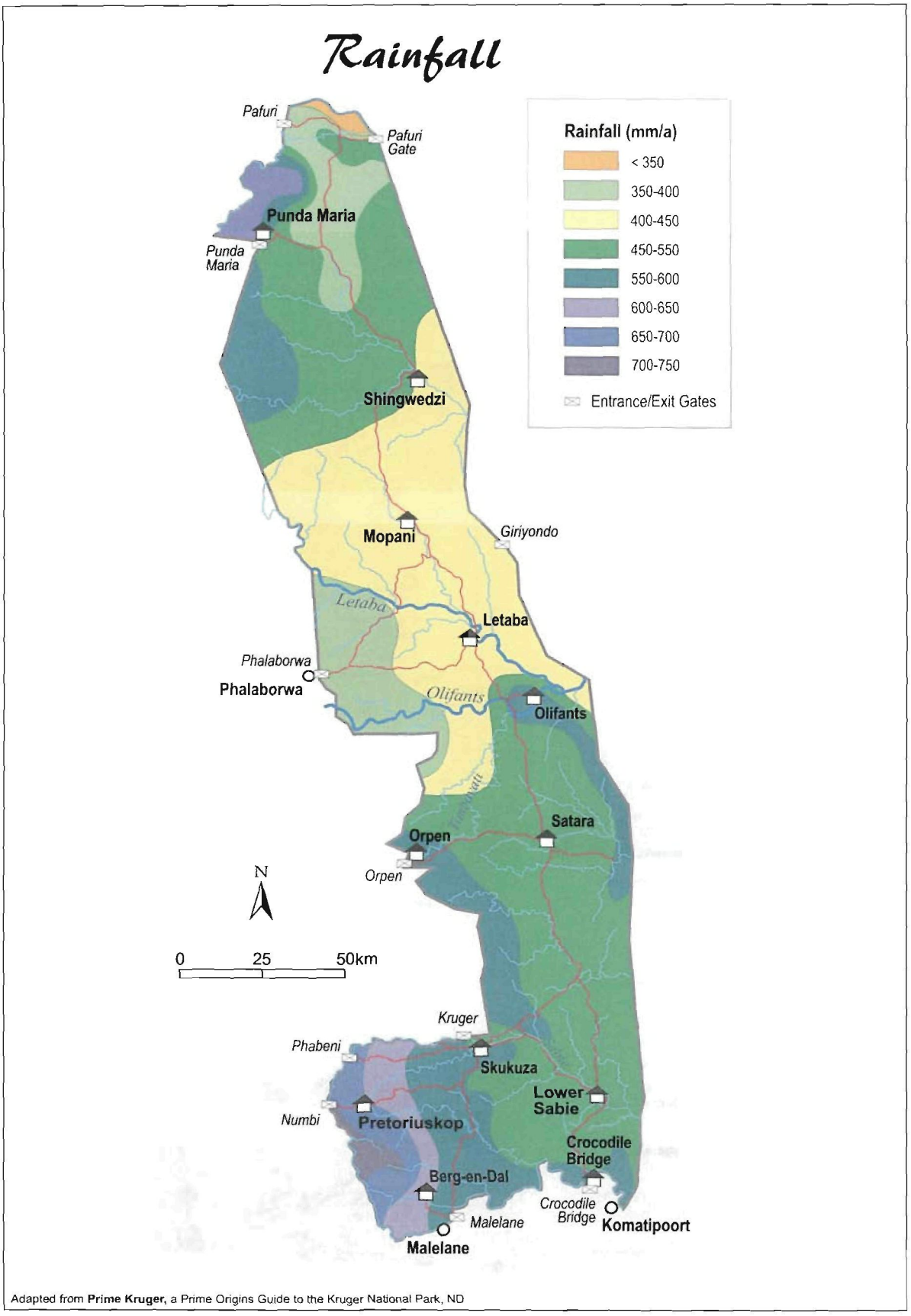


Figure 6.11: Rainfall of the Kruger National Park

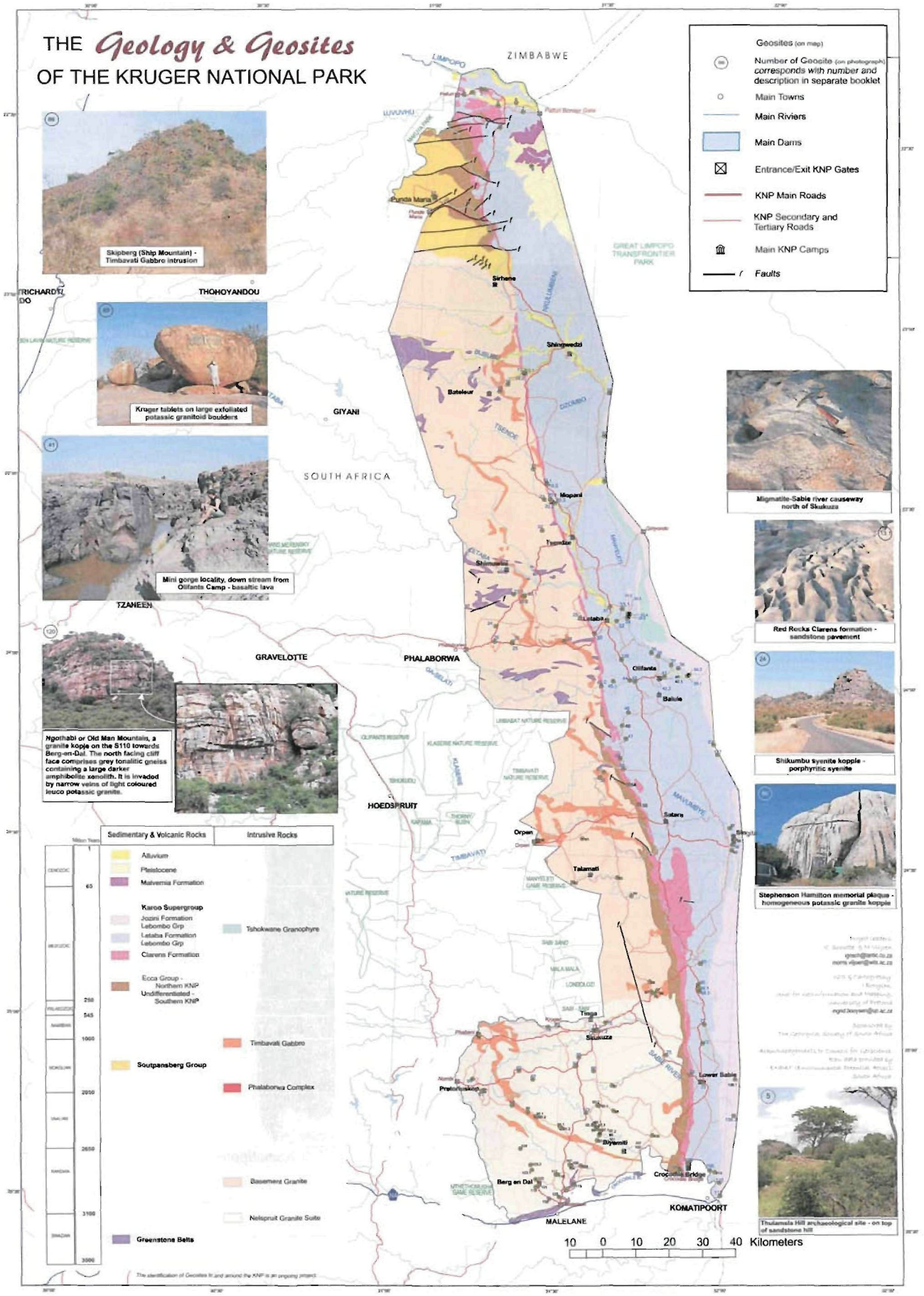


Figure 6.12: The Geology and Geosites of the Kruger National Park

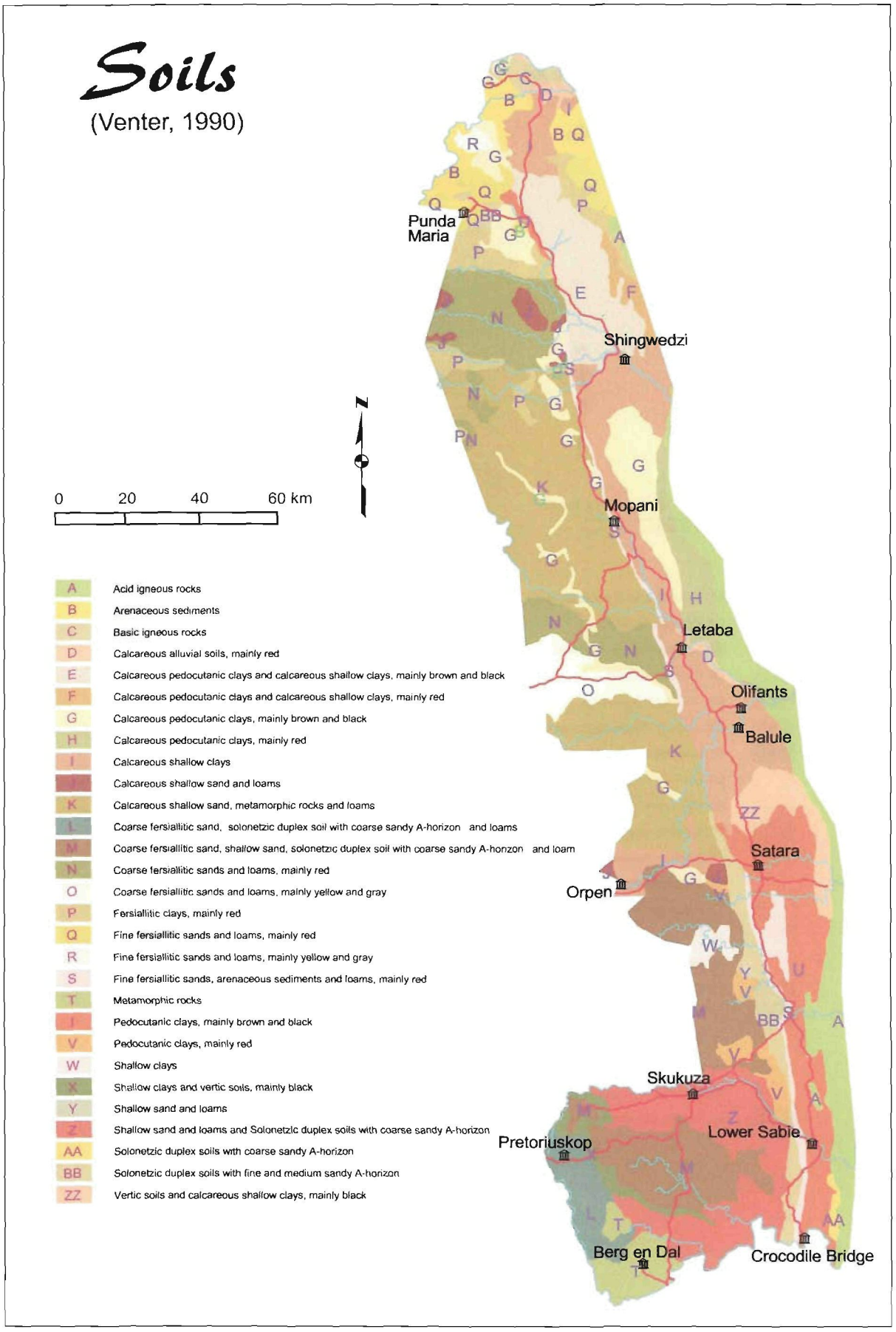


Figure 6.13: Soils of the Kruger National Park

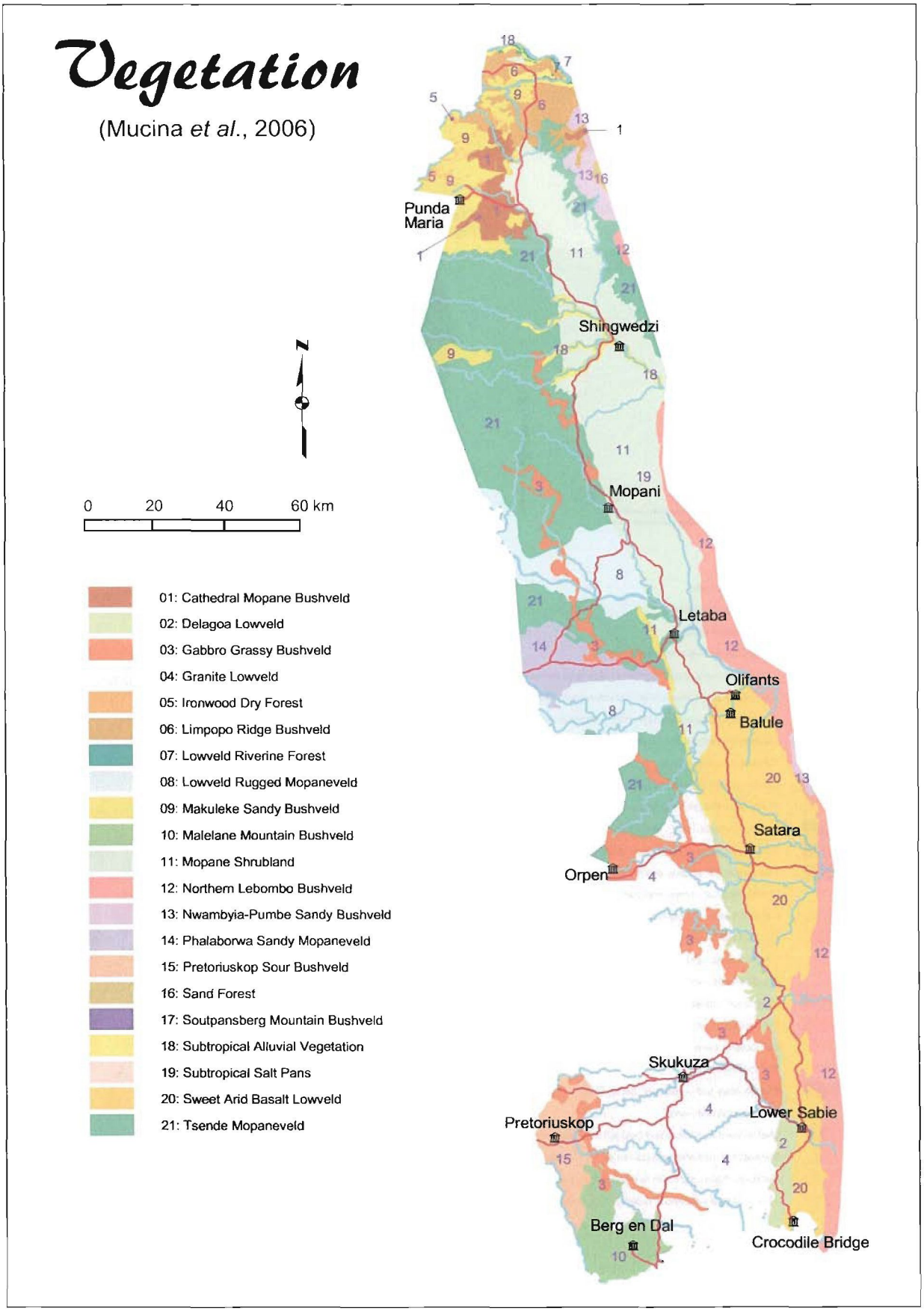


Figure 6.14: Vegetation of the Kruger National Park

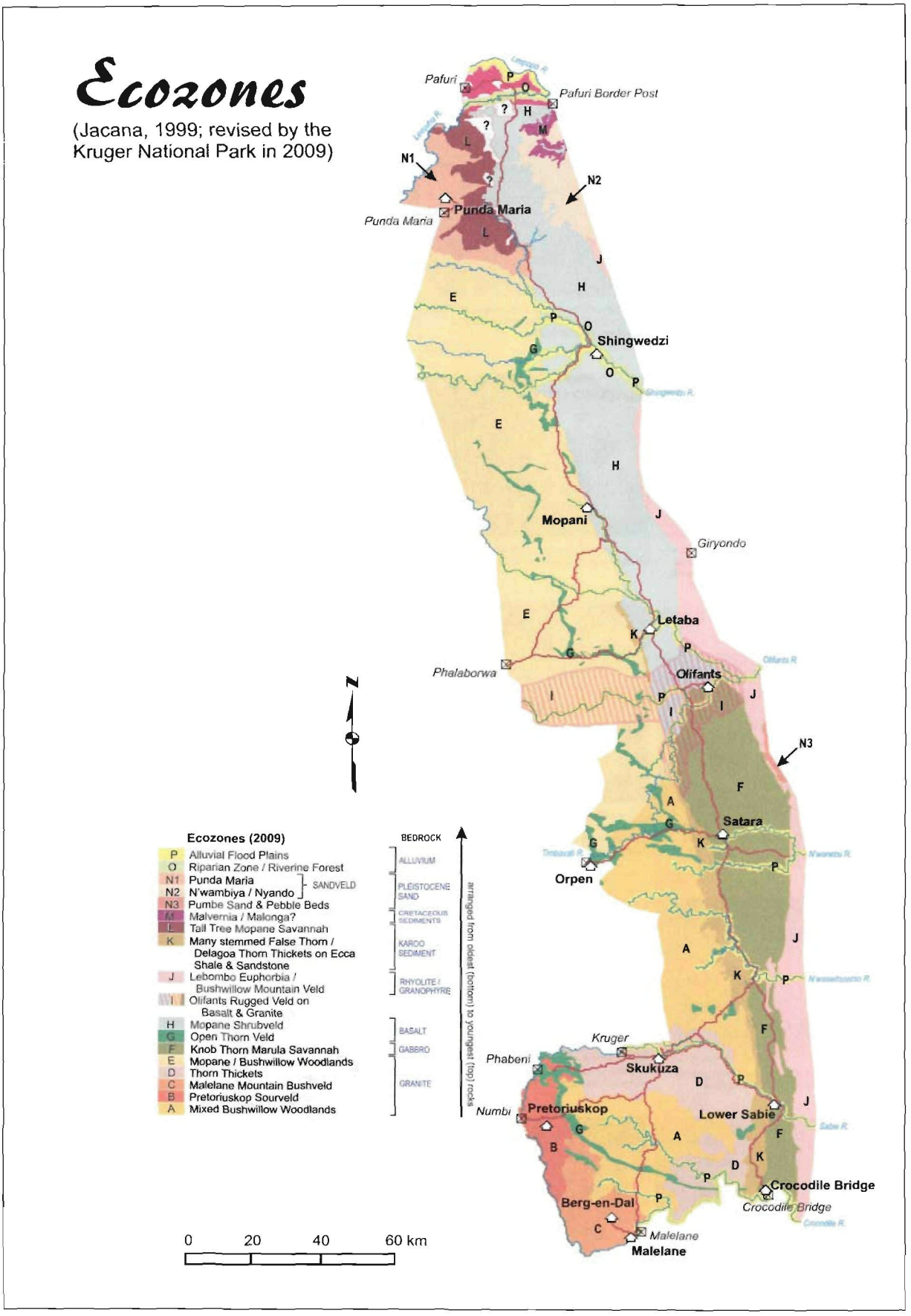


Figure 6.15: Ecozones of the Kruger National Park

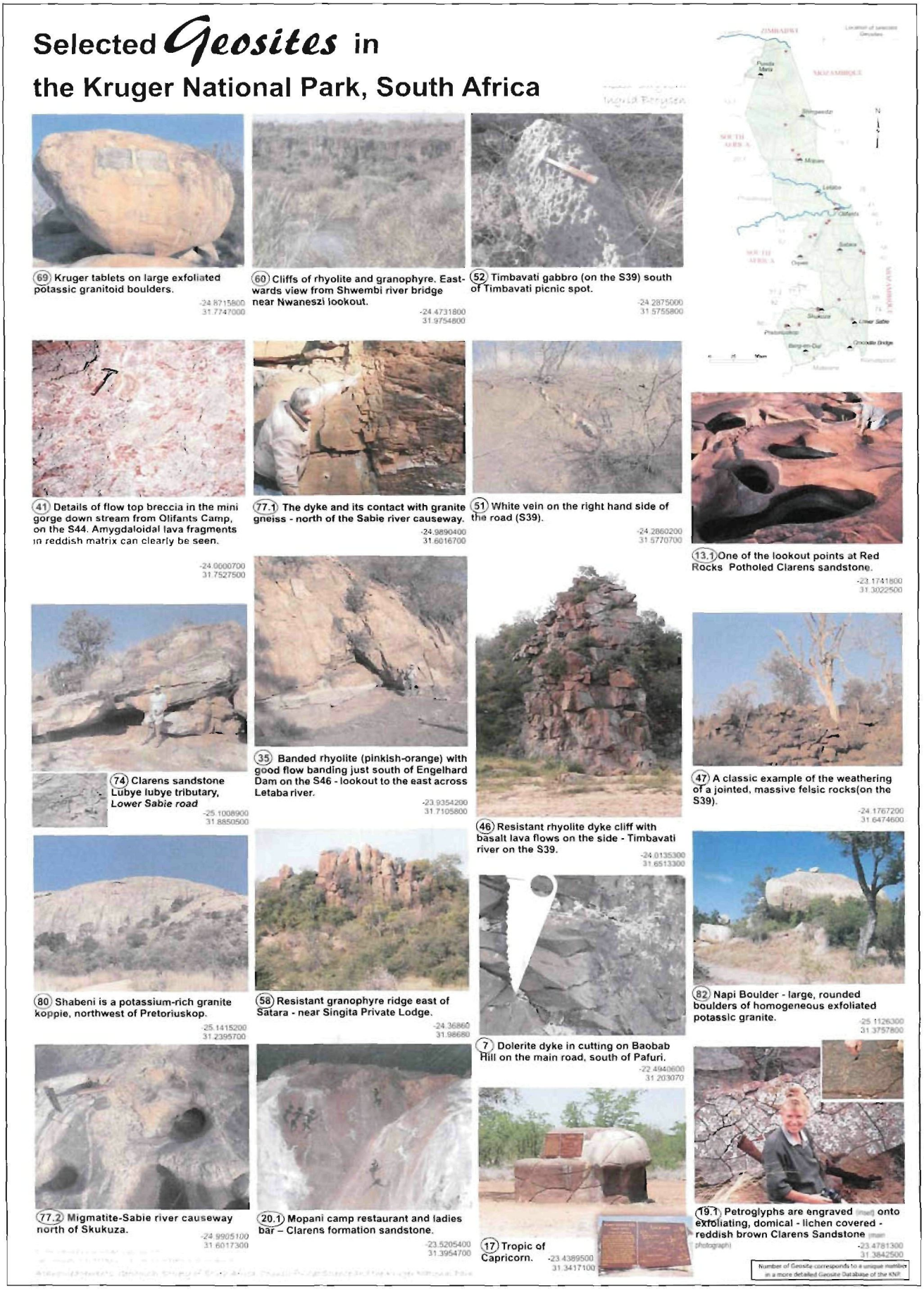


Figure 6.16: Geosites in the Kruger National Park

CHAPTER 7
CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The overall goal of the study was to develop a strategic management plan for the sustainable development of geotourism in South Africa. In order to achieve this goal, a number of objectives were identified, namely:

- To critically evaluate the theoretical foundations of sustainability and its applicability with regard to geotourism (c.f. 1.3.1). This goal was achieved in Chapter 2: "*The pillars of sustainable tourism*".
- To critically evaluate internationally existing concepts and guidelines for geotourism and geoconservation (c.f. 1.3.2). This goal was achieved in Chapter 3: "*Components of geotourism*".
- To critically evaluate the development of geotourism, site and visitor management and how the various approaches and tools for the management of geotourism can be applied (c.f. 1.3.3). This goal was achieved in Chapter 4: "*Geotourism development, site and visitor management*".
- To develop criteria for the implementation of a strategic management plan for geotourism in South Africa (c.f. 1.3.4). This goal was achieved in Chapter 5: "*Developing a strategic management plan for geotourism*".
- To evaluate and discuss the results of the case studies. This goal was achieved in Chapter 6: "*Results of the case studies*".

The last objective, to draw conclusions and make recommendations, will be addressed in this chapter. This concluding chapter will also indicate the contributions made by this thesis.

7.2 THE CONTRIBUTION OF THE STUDY

The contributions made by this study are listed below:

- Firstly, a strategic plan was developed that can serve as basis on how to develop geotourism in South Africa.
- Secondly, guidelines were developed that can be considered useful tools towards achieving sustainability.
- Thirdly, the results of the thesis can assist entrepreneurs/developers in the establishment of future geosites, geo-areas and geoparks.
- Fourthly, the expansion and contextualisation of literature in the field of geotourism especially in a South African context was achieved. This included the integration of aspects such as sustainability, geotourism and strategic management.
- Finally, it is noted that this was the first study of this kind in South Africa

The results of this thesis also led to the publication of two international conference papers.

7.3 CONCLUSIONS WITH REGARD TO THE LITERATURE REVIEW

Because geotourism is a completely new concept that developed mainly in Europe and China since 1991, very little literature was available in libraries in South Africa. The first tentative attempts to describe geology to the layman were completed in Namibia during 2002 and 2004. This could be regarded as the foundation of geotourism in Southern Africa. The researcher wrote a number of articles for Geobulletin during 2003 and 2004 regarding geotourism in the Kruger National Park (KNP). Geological books for the layman were published in South Africa in 2005 and 2006. In 2006, geotourism in Southern Africa was described with special focus on the potential South Africa, but no concerted, definitive attempt was made to say how this potential could be developed and used.

Most of the literature for this study was obtained through the Internet by means a Google search. Some few e-mails were written to the most prominent persons involved in geotourism overseas, and many brochures and booklets were sent to the researcher. During visits to geotourism conferences in Europe during 2006 and once more in 2008, the researcher also sought relevant information on the subject. This material proved to be very useful when determining how geotourism was applied.

The conclusions will deal with the following aspects listed below:

- Sustainability aspects
- Geotourism aspects
- Geotourism management aspects, and
- Geotourism management plan aspects.

7.3.1 SUSTAINABILITY ASPECTS (c.f. 2.1)

The pillars on which sustainability is constructed were described in Chapter 2. The United Nations Conference on the Human Environment held in Stockholm, Sweden (1972) marked the emergence of international environmental law. In the Brundland Report (1987), sustainability was defined as *"Meeting the needs of the present generation without compromising the ability of future generations to meet their needs."* At the Rio 92 Conference, sustainability as a separate issue, for the first time it was opined that all resources should be managed in such a way that economic, social and aesthetic needs can be fulfilled. This led to the adoption of Agenda 21. Since then various definitions of sustainability have been described and expanded by different authors (c.f. 2.2). A very informative explanation in 2002 was depicted as the "*EcoSteps sustainability tree*". It is depicted as a coherent, conceptual framework brought about by integrating the social, environmental and economic dimensions using a systems approach (c.f. 2.2).

Following the United Nations Conference on the Human Environment (1972) in Stockholm, Sweden, there has been an evolution of the concept of sustainability. Subsequent to the

Brundtland Report (1987), the concept of "*sustainable development*" was introduced. Several important dates of sustainable development are shown in a figure and the evolution of the concept over time, as well as the actions of the different actors during more than 30 years (c.f. 2.2.1). Sustainable development is thereafter illustrated as the three spheres/pillars diagram. True sustainable development may be defined then as the development that meets the triple bottom line, where all three systems are in equilibrium (c.f. 2.2.1, Figure 2.4). Sustainable development, as defined, was expanded by an US mining company in 2008 to include economic prosperity, social well-being, environmental stewardship, and governance as the starting points on which the other elements are based (c.f. 2.2.1). In 2006, the National Strategy for Sustainable Development (NSSD) showed, in a different way, how social, economic and ecosystem factors are embedded within each other and are underpinned by systems of governance (c.f. 2.2.1). At the "*3rd UNESCO International Conference on Geoparks*", Osnabrück, Germany, (2008) one of the key speakers stated that:

- Sustainability underpins all tourism development today including geotourism;
- Sustainability means being economically viable, community beneficial, and environmentally responsible, and
- Sustainability is only achieved through appropriate planning and management (c.f. 2.2.1).

The Local Agenda 21 (LA 21) was adopted at the Earth Summit in Rio de Janeiro (1992) requesting local authorities to consult with their communities to develop and implement a local plan for sustainability of development. There is no fixed model for LA 21. It is rather a program that provides a framework for implementing sustainable development at the local level. As no fixed model exists for LA 21, it should have processes that integrate environmental, economic and social development. The programs being integrated should be relevant to the local Government and to the community involved in its development (c.f. 2.2.2).

At the World Conference on 'Sustainable Tourism' that was held in Lanzarote (Spain) during 1995, tourism development was discussed and it was stated that this too should be based on the criteria of sustainability. The relationship between sustainable tourism and other terms are interwoven (c.f. 2.3, Figure 2.7). Other researchers maintained that four primary pillars of sustainable tourism exist: ecological, economic, socio/cultural and political/governance environments (c.f. 2.3). Another viewpoint in 2002 showed six dimensions of sustainable tourism: ecological, economic, socio-cultural, institutional, local agenda 21 process, with tourism and political systems core (c.f. 2.3). A very informative way to depict sustainability was developed as the Concentric Circles Model of Sustainable Tourism. It consisted of three concentric circles of sustainability. The centre of the model shows the intergenerational equity (IE); the next (middle) circle shows the interactions between capital stock and stakeholders, and interactions within stakeholders shall be sustainable, a and the outer circle shows how sustainable strategies should be implemented in order to reach equilibrium (c.f. 2.3, Figure 2.9).

In 2004, the Department of the Environment and Heritage of Australia developed and documented ten steps for developing sustainable tourism plans. These are used as a tool when managing and developing regions, places and tourism products. In step 6 of the development, the SWOT-analysis is an important consideration (c.f. 2.4).

7.3.2 GEOTOURISM ASPECTS (c.f. 3.1)

Geotourism, seen as a new form of tourism, and all the terms associated with it were identified in Chapter 3.

In 1994, the term geotope was introduced to Europe. Since then it has been used widely on the European continent. In 1996, the term geosite was proposed to encompass any site that contains significant geodiversity. In the rest of the world, geosite is used instead of geotope. The geological Survey of Canada (2004) discussed a list of geosite selection criteria showing that even a single criterion may be sufficient to recognise the outstanding character of a geosite (c.f. 3.2).

Since 1992, the World Heritage Convention was the world's leading international instrument for the protection of the most outstanding destinations on Earth. They compiled the World Heritage List (WHL) consisting of natural, cultural and mixed properties. They proposed that the key criterion for World Heritage Inscription is that the site has to be of '*outstanding universal value*', Thus, the most important aspects of World Heritage Sites are their superlative characteristics, their high level of representation of places worth protecting and their irreplaceable value to humankind. At present, there are 8 World Heritage Sites (WHS) in the country, with the most notable being the Vredefort Dome and St. Lucia Wetlands (c.f. 3.2.1).

In December 2008 The World Heritage List includes 878 properties forming part of the cultural and natural heritage that the World Heritage Committee considers as having outstanding universal value. These include 679 cultural, 174 natural and 25 mixed properties in 145 States. As noted above, in South Africa there were 8 World Heritage Sites (WHS); one was mixed, 4 were cultural and 4 were natural properties. The natural properties are:

- Greater St. Lucia Wetland Park (iSimangaliso) (1999)
- uKhahlamba/Drakensberg (2000). (It is a mixed property)
- Cape Floral Region Protected Areas (2004), and
- Vredefort Dome (2005)

(http://whc.unesco.org/en/list/).

Although the Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs (1999, 2005) are classified as a cultural property, the importance of geology and cave formation is ignored and it should be re-classified as mixed in the future.

To be classified as WHS, properties nominated should:

- Be outstanding examples representing major stages of earth's history, or
- Be outstanding examples representing significant on-going ecological and biological processes, or
- Contain superlative natural phenomena or areas of exceptional natural beauty, or
- Contain the most important and significant natural habitats for *in situ* conservation of biological diversity.

Criteria for the inclusion of natural (N) and cultural (C) properties are:

- The Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs (C iii, vi)
- Greater St. Lucia Wetland Park (iSimangaliso) (N ii, iii, iv)
- uKhahlamba/Drakensberg Park (C i, ii, and N vii, x)
- Cape Floral Region Protected Areas (N ix, x), and
- Vredefort Dome (N viii)

(http://whc.unesco.org/en/list/, http://whc.unesco.org/whc/nwhc/pages/sites/main.htm).

A short list of WHS overseas was given for comparison (c.f. 3.2.1). A short description of the most stunning geosites/areas in South Africa was also given, as well as those from overseas (c.f. 3.2.2, 3.2.3).

A new term called geodiversity defines the natural variety of the Earth's surface. This is a useful concept for geoconservation and management of abiotic heritage, referring to geological and geomorphological aspects, and was described by several authors. A useful diagram summarises the benefits and social functions of geodiversity in a descriptive diagram (c.f. 3.3, 3.3.1, Figure 3.2).

"*Heritage*" refers to products and events in a historical context. Geoheritage implies the heritage of geology and the various products thereof. South Africa has a rich variety of geoheritage that is world-known (c.f. 3.4).

Geotourism is a new form of tourism is that has been developed in Europe and China since 1991. It includes geology, mineralogy, palaeontology, geosites, present and defunct mines, caves, and collections of geological specimens in museums. The focus is that geology forms the basis of geotourism (c.f. 3.5). The Wieliczka Salt Mine in Poland (c.f. 3.5.1) can be regarded as the place where geotourism originally started to develop (http://whc.unesco.org/sites/32.htm). In Australia, a substantial contribution of the nature and scope of geotourism was made in 2006. Diagrammatically, the three main components are form, process and tourism with its various sub-divisions. This is the best diagram developed so far to explain the concept, and it can be used to explain the basis for the pillars on which geotourism is built (c.f. 3.5.2, Figure 3.4). At the "*3rd International UNESCO-Conference on Geoparks*", held at Osnabrück, Germany, between 22-26 June 2008, one of the main speakers

from Australia gave a PowerPoint© presentation on geotourism where all the newest research and the most recent views on the subject were covered. This can be regarded as the most extensive explication of geotourism so far. Dowling (2008:10) defined geotourism by saying that:

"***Geotourism is sustainable tourism with a primary focus on experiencing the earth's geological features in such a way that fosters environmental and cultural understanding, appreciation and conservation, and is locally beneficial***".

For the first time in South Africa, geotourism featured prominently at the Geocongress 2000 held at Stellenbosch. Posters were displayed, four pre-congress excursions were held, and a workshop on quality-appraisal of diamonds was presented. Brochures of the eleven geosites of the Western Cape were also available. With these actions, geotourism was formally introduced to the public. A reconnaissance study on geotourism was done in 2003 by Smit from a geological point of view and so does not represent fully the country's variety of geoheritage. It is a superficial study, and only one researcher's findings from overseas were used with very little tourism literature researched even from the Internet. Not enough background research was done from the tourism point of view. Other South African authors have had some minor publications but, again, not enough research on the subject was undertaken (c.f. 3.5.2).

The Geotourism Study (c.f. 3.5.3) that was completed in 2002 for National Geographic Traveller (NGT) in the USA gave another definition of geotourism, this time approaching the issue from a geographical point of view:

"***Tourism that sustains or enhances the geographical character of the place being visited - its environment, culture, aesthetics, heritage, and also the well being of its residents***".

It was established that there is a close relation of geotourism with all other forms of tourism and that ecotourism is very closely related to this niche market tourism. Much of the criteria of ecotourism are applicable to geotourism (c.f. 3.5.4).

Geosites as part of a nation's geoheritage must be properly conserved before it can be used by geotourism. Thus, geoconservation is essential to maintaining the best of the geoscience heritage. At a meeting in Strasbourg, France (2004), conservation of geoheritage on a world-wide scale was discussed for the first time (c.f. 3.6, 3.6.1). The six appendices of the conference report summarised the issues:

- Philosophy and practice of geological and geomorphological conservation
- Existing conservation programmes, and criteria for selecting areas of special geological importance
- Managing areas of special geological interest

- Information and education programmes to promote action in the field of geological heritage conservation
- Strengthening co-operation with international organisations; and
- Scientific institutions and NGOs in the field of geological heritage conservation.

In Australia, Europe and the US much has been done to conserve geoheritage. But so far, not much has been done to conserve geoheritage in South Africa except for the work undertaken at the Vredefort Dome, Cradle of Humankind (COH), uKhahlamba/Drakensberg Park and the Greater St. Lucia Wetlands (c.f. 3.6.2).

Overseas geotourism is used for geo-educational purposes in geosites, for example, old mines, caves, geomuseums, geo-exhibitions, geotrails, and at geoparks, and using a variety of communication media (c.f. 3.7). Excellent examples demonstrating where geology is explained to the layman can be found in France, Germany, South Wales, at the Klondike Gold Rush National Historical Park (US), Canada and in Western Australia. A few fossil parks in the US allow the public to collect and keep the fossils they find (c.f. 3.7.1). In South Africa, the only examples of geosites are Cullinan mine, the Big Hole in Kimberley, Kleinzee and Gold Reef City. Geological museums also educate the layman about geology.

7.3.3 GEOTOURISM MANAGEMENT ASPECTS (c.f. 4.1)

In Chapter 4, geotourism development, site and visitor management and international examples were given.

Visitor attractions are an important aspect for successful destinations. It was shown that attractions and destinations deliver tourism services. A geotourism destination should be able to compete involving social, environmental, economical, cultural, political and technological strengths. For a competitive and successful destination, certain steps to destination success must be followed. A sustainable geotourism approach implies that the natural and other recourses of tourism are conserved for continuous use and benefits in the future (c.f. 4.2.1, Figure 4.2)

The "*Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance*" of 2002 assists destinations with an interest in natural places to establish their natural heritage values and manage them accordingly (c.f. 4.4, Figure 4.5). It stresses that the planning process, conservation policy, management strategy and the conservation plan must be monitored and reviewed continuously.

Since 1864, certain areas were proclaimed in the US as protected areas. They later became protected area management categories (c.f. 4.4.1). After the Digne declaration (1991), geoparks were established in Europe, China, and now also in other parts of the world. They have rich and diversified geoheritage and geoheritage are conserved, enhanced and managed for future generations and for its use to visitors. People are also educated about the value of

geoheritage (c.f. 4.5). An ecomuseum in Sweden is similar to a geopark. Geoparks are administered by the European Geoparks Network (EGN) (c.f. 4.5.1, Figure 4.9) and the Global UNESCO Network of Geoparks. Several criteria are set for the establishment of a geopark that wants to join the Global Geoparks Network: Size and setting, management and involvement, economic development, education, protection and conservation (c.f. 4.5.2).

Examples were given how geotourism products are utilised in mining museums, historical mining towns and theme parks. Many mining heritage places were conserved and are now being used as tourist attractions. Examples are mostly found in countries that have a mineral/mining industry. A few were declared World Heritage Sites, i.e. the mining history of Røros (Norway), the historic centre of the town of Diamantina (Brazil), the mines of Rammelsberg and the historic town of Goslar (Germany). The German Mining Museum in Bochum (Germany) is a big tourist attraction with more than 400 000 visitors per year. The British Museum of Mining in Vancouver (Canada) celebrates the importance of natural resources to Canada's history (c.f. 4.6.1).

The towns of Pilgrim's Rest, Barberton, Kimberley and Johannesburg (Gold Reef City) are examples of the mining heritage of South Africa where geoheritage is explained to the visitors (c.f. 4.6.1). Platinum City (Rustenburg) will follow when the construction of the park will be finished in 2010. The whole town of Pilgrim's Rest was declared a museum. The South African Gold Panning Championships, hold annually in the town is the only event of its kind in the country so far.

The "*3rd International UNESCO-Conference on Geoparks*" was an important event that was held in Osnabrück (Germany) in 2008. The topic was communication and the goal was to create appropriate methods to raise the awareness of the geological heritage of the planet - far beyond a geopark's borders. Before the conference posters, education pamphlets and booklets from 58 World Geoparks were displayed at the 1st International Geoparks Fair. The "*Inaugural Global Geotourism Conference 2008*" was held in Fremantle (Western Australia) in 2008. The event set a benchmark for the tourism industry in relation to the development, management, marketing and promotion of landscapes. All aspects of geotourism, geoconservation, and geo-education were highlighted (c.f. 4.6.3). A geo-exhibition was the Dartmoor Rock 370,000th Millennium Exhibition (2002) that was held in Cornwall, (UK) (c.f. 4.6.4).

Interpretation is an educational activity aimed at revealing meanings and relationships to people about the places they visit (c.f. 4.7). There are certain guiding principles for interpretation (c.f. 4.7.1). Principles for successful interpretation must be applied (c.f. 7.4.2). Geoheritage interpretation is necessary because geoheritage underpins the landscapes and the geodiversity that exists (c.f. 4.7.3). It can enhance the geotourism experience, help job creation, and help with on-site management. The benefits are that interpretation is an effective way of adding value to the experience. It educates and entertains visitors that cause them to reflect about environmental values. The role of interpretation is to make people more

aware of what they visit and to provide knowledge that increases their understanding of geoheritage (c.f. 4.7.4).

7.3.4 GEOTOURISM MANAGEMENT PLAN ASPECTS (c.f. 5.1)

In Chapter 5 aspects related to the development of a strategic management plan for geotourism were examined.

Strategic planning was the starting point from which to select a desirable future from alternatives of strategies and actions to be implemented in achieving the desired outcome. Various references of well-known authors were described to get an overview of the strategic management process (c.f. 5.2). A practical example of the Network History of the Earth (Germany) illustrated how stakeholder involvement is crucial for successful partnerships by the process of networking where persons from different disciplines that are linked together and keep their independence to create a win-win situation. Innovation, high-quality standards and sustainability guidelines show that a network is really performing very effectively to develop and promote high-quality, sustainable geotourism. A bottom-up, starter project and promoter strategies are crucial (c. f. 5.2.1).

A sustainable tourism management plan (2007) was developed as a methodology guide for biosphere reserves (BR) in Eastern Europe. The guide was used as a basis to develop a geotourism management plan for South Africa (c.f. 5.3). The basics of strategic management were discussed (c.f. 5.3.1).

The conceptual framework for a strategic management plan of Schutte (2007) was amended and used as a basis for the sustainable development of geotourism. The steps used by most authors are:

1. Vision and mission
2. Situation and resource analysis
3. Strategy formulation
4. Implementation, and
5. Evaluation (c.f. 5.3.1, Figure 5.18).

A vision and mission for geotourism should be proactive to give guidance in terms of where one wants to be, and also who one is, what one does and where one is headed. The mission statement set the course for future geotourism development. The South Australian Tourism Plan 2003-2008 is an example how a vision can be used through partnerships to achieve sustainability in destination development, strategic practice, marketing and profitable business. It can be applied in South Africa with regard to geotourism (c.f. 5.4).

A situation and resource analysis help tourism managers to identify key internal and external variables, as well as potential business opportunities (c.f. 5.5). A SWOT-analysis is very important to give guidelines for geotourism development in the future. In the environmental,

social and economic analysis of geotourism all three components must be weighed together to achieve a balanced development of geotourism (c.f. 5.5.1).

Environmental, economic and social analysis of tourism is important. These considerations must be well understood in the successful planning, development and management of tourism. The impacts for tourism should also be considered (c.f. 5.5.2).

The three Heritage Legislation Acts (No's 11, 25, 49 of 1999) with regard to geology and geoconservation in South Africa has little significance. Only the identification of cultural heritage resources is emphasised by Act 25; natural heritage is only mentioned. A completely new act about natural heritage should be formulated and be restructured to give more attention to natural heritage (geoheritage) (c.f. 5.5.3).

Strategic management and planning is the core of management and indicates the direction of a business. Without strategic planning, there will be no quality management. Strategy is the way an organisation seeks to achieve its vision and mission. It is also a course of action that includes planned resources required, to achieve a specific objective and deploy its capabilities. An example of a geotourism strategy is for the Flinders Ranges (Australia) (c.f. 5.6).

The implementation of strategic management is the action phase of the strategic management process. It deals with making a strategic choice that is concerned with the generation and evaluation of various strategic options. A proper strategic strategy should also be selected. A practical example was given in the South Australian Tourism Plan 2003-2008 where sustainability and its relationship to the triple bottom line (TBL) were described (c.f. 5.7, Figure 5.11).

The geosites, geo-attractions and geodestinations in South Africa should be managed according to sound strategic business management principles. Appendix 3 of the "*Recommendation Rec (2004)3 on Conservation of the Geological Heritage and Areas of Special Geological Interest*" in Strasbourg (France) gives guidelines for the management of geosites (c.f. 5.7.1).

Marketing is an important component in the implementation of sustainable tourism principles and practices. Strategic marketing and promotion and an awareness campaign can emphasise the importance of geology (c.f. 5.7.2). Awareness campaigns to emphasise the importance of geotourism as a new niche market in tourism is necessary (c.f. 5.7.2.1).

The purpose of monitoring is to scrutinise how the plan is working in practise and give feedback of modifications of the original plan. Therefore, a strategic management evaluation and monitoring of geotourism progress should be done. Address future challenges/issues and show how it can contribute to the achievement of sustainable tourism (c.f. 5.8).

7.4 CONCLUSIONS WITH REGARD TO FIELD WORK/CASE STUDIES

Chapter 6 reflected the conclusions from the six case studies based on the interviews with the respondents, regarding geotourism. The case studies represented the spectrum of geotourism in South Africa. They are examples of a National Park, a conserved gold mining heritage town, a visitor gold mine, a well-established diamond tourism centre, a World Heritage Site and a museum collection that were chosen as representative of geosites. The various issues that were discussed during the interviews were:

- Background and history
- Present status
- Lessons learned
- Implementation of sustainability
- Benefits, and
- Future actions.

7.4.1 MAIN FINDINGS

The main findings from the case studies were:

- There was either a lack or no knowledge at all of geotourism by the respondents
- There was no policy or strategic geotourism development plan for geotourism.
- Little planning, management and marketing had been done. The Cradle of Humankind (COH) was an exception as extensive research has been done since 1997 when an application was submitted for a World Heritage Site status. Today, this WHS is a world-class visitor destination
- Very little financial support has been received either from the Government, local municipalities, or from mining or financial companies
- Too little funding was a problem for all the case studies
- No geoconservation legislation exits.

General findings from the case studies are:

- Four of the case studies were located in protected areas, while two were located in an area/building that is protected because of specific visiting hours, and
- New concepts of geotourism and associated concepts were introduced. Other supplementary products could complement geotourism in each of the cases.

General findings with regard to the implementation of sustainability are:

- The application of overseas research and experience in geotourism development is necessary but the principle of sustainability is not yet well understood in a third world country
- The layman is not aware of geotourism and also has little or no knowledge of it
- The enhancement or integration of economic, social and environmental principles is a prerequisite in every case

- Geotourism was not a part of the present management plans and great awareness and knowledge of geotourism should be inculcated
- In all the cases, there are sufficient stakeholders from varied communities. However, much more can be done such that each of the exemplars work together, and start networking for their mutual benefit
- This principle of synergistic networking applies to all the stakeholders, too
- The management of individual geosites was excellent in all cases, perhaps because four of the sites are located in protected areas while the other two have defined and published visiting hours
- Not enough marketing has been done so that the nonprofessional understands the concept of geotourism and of its undoubted benefits.

In all the case studies, the various stakeholders had the following in common:

- They sought to conserve natural heritage, geoheritage and mining heritage
- They sought to create opportunities to work with other tourism sectors
- Every place or area enhanced the visitor experience with their existing geotourism product
- They believed that geo-education was one of the cornerstones for geotourism, particularly when geology, as the foundational process, is explained to tourists.
- They understood that interpretation is provided in all the cases to lead the visitor to discover and understand the wonders of the place or area
- They understood that successful tourism can be achieved when all the above are fulfilled.

7.5 MANAGEMENT PLAN FOR GEOTOURISM IN SOUTH AFRICA

The structure of Chapter 5 was adapted by the researcher, and used to develop a strategic geotourism management plan.

The plan consists of:

1. Vision and mission
2. Situation and resource analysis
3. Goals and objectives
4. Strategy, and
5. Implementation and evaluation (c.f. 5.2, Figure 5.1).

7.5.1 VISION AND MISSION (c.f. 5.5)

The vision and mission that will be proposed could serve as a basis for the sustainable development of geotourism in South Africa. It also reflects the purpose and core responsibility of future geotourism actions (c.f. 7.4.2, 5.5, 5.5.1) for South Africa:

1. Geotourism vision:

"Establish South Africa as a world class geotourism destination".

2. Geotourism mission:

"To *identify, document, promote and conserve South Africa's geological features in a sustainable manner in order for tourists and visitors to enjoy an enlightening experience".*

7.5.2 SITUATION AND RESOURCE ANALYSIS (c.f. 5.6)

A georesource analysis must be undertaken to determine the country's geo-assets, (that is, the natural and geomorphological sites, landscapes, mountains, meteorite impact craters, geosites and geo-areas, caves, fossil deposits and wetlands). The case studies that have been presented were representative of geosites or areas in South Africa. The case studies represent excellent examples of geosites such as those found in a National Park, a gold mining heritage town, a visitor gold mine, a diamond theme park, in cave systems developed as a World Heritage Site for anthropologic reasons (COH) and a geological museum. Another pertinent point is that South Africa is well known for having some of the world's most representative and spectacular examples of geological phenomena (c.f. 1.1, 1.2, 1.4.2).

There are many stakeholders in the tourism industry (CRC for Sustainable Tourism 2002). Local government authorities have helped to establish legislation to regulate tourism. Resource and traditional landowners worked with planners to provide the infrastructure for new destinations. Resource, hospitality, communication, Information and Communication Technology (ICT), finance and National Park managers manage the tourism enterprise, while enterprise operators (such as hotels, airlines, airports, hire cares, attractions, tour operators, travel agents, farm stays, convention centres, restaurants, museums, sporting events) are all service providers in the tourism industry. Marketers do promotions to attract visitors. Employees do the normal operational tasks associate with tourism. Tourists (domestic and international) are classified as, for example, package holidays, ecotourists, business travellers, backpackers, visiting friends and relatives, events, conferences, or cultural tourists (http://www.crctourism.com.au/about/default.aspx) (c.f. 5.3.2).

Some (or all) of these categories of stakeholders will be involved in the future development and management of geotourism in South Africa.

7.5.2.1 Swot analysis

The SWOT analysis served as a basis for collecting information from the case study examples so that they can be used as guidelines for future planning, development, management and marketing for geotourism in the country.

Strengths that would be in the interest of the South Africa are:

- Each geosite or geo-area has its own authentic and unique geoproduct

- They are excellent geodestinations
- They have professional management
- There is well established tourism infrastructure
- They have well-produced and informative websites
- They adhere to good geoconservation practices
- The organisations have good infrastructure
- The Diamonds and Destiny Visitor Centre (Big Hole, Kimberley) and the Maropeng and Sterkfontein Caves are world-class visitor centres
- Each of them can be used as an example or good geo-education practices.

Weaknesses that should, in the broader interest of South Africa, be avoided are:

- The concept of geotourism as a new product that is not very well known
- Failing to implement geotourism
- The current abysmal lack of knowledge concerning geo-tourism
- Too little funding available to effectively promote the concept.

Opportunities that would further the interests of South Africa are:

- The integration of geotourism into the mainly biological ecotourism activities at National Parks, Private Game Parks, Botanical Gardens and Conservancy Visitor Destinations, with the following sub-aims:
  - Establish world class interpretation centres
  - Exhibit more posters about geology in the existing/planned information centres
  - Develop geological exhibitions and open-air geological museums
  - Organise guided geotourism tours
  - Provide and promote extensive geo-education and geo-interpretation
  - Install a computerised system of all the geosites/areas activities for the public in an information centre
  - Print geotourism guides (c.f. 7.3.4), and
  - Publish visitors' geobrochures and georoutes.
- The integration of geotourism into the mining heritage of the country, with the following sub-aims:
  - Prepare a regional, provincial and national strategy concerning the role of mining heritage in the industrial development of the country
  - Establish world class interpretation centres
  - Exhibit more posters about geology and mining activities in the existing and planned information centres
  - Develop geological, mining, perhaps open-air, geological or mining museums;
  - Organise and provide guided mine tours
  - Provide and promote extensive geo-education and geo-interpretation
  - Install a computerised system of all the geosites/areas activities for the public in an information centre
  - Have mining companies support and invest in the development of the mining

complex, particularly emphasising the importance of mining history
  - Support the declaration of the reduction works in Pilgrim's Rest as the first industrial World Heritage Site (WHS) in Africa
  - Publish a book aimed at the lay-market on gold, diamond and platinum geology
  - Educate the layman concerning gold, diamond and platinum geology.
- The integration of geotourism into the palaeontology and palaeo-anthropology experiences at the Cradle of Humankind (COH), Makapan's Valley and Taung
- The integration of geotourism into geological museums' activities by:
  - Revamping and upgrading the existing collections
  - Creating moving exhibits
  - Opening geologically-themed, strategically placed, geological museum shops.
- The planning of better interpretation facilities at geosites and geo-areas to enhance the geotourism experience of the visitors.

At present, there are no geoparks in South Africa. However, there are a few areas should be considered for UNESCO World Geopark status, such as:

- The Kruger National Park (KNP)
- The Barberton Mountainland with rocks that shows the evolution of the ancient Earth's crust
- Phalaborwa area, including the Murchison Range to the north
- Panorama Route Geopark on the escarpment, including Pilgrim's Rest (mining history)
- The Vredefort Dome (meteorite impact crater)
- The Witwatersrand Goldfields area, from Springs to Krugersdorp
- The Pretoria area, Cullinan Diamond Mine and Tswaing Meteorite Impact Crater
- Rustenburg area, including working chrome and platinum mines, and Platinum City;
- Pilanesberg National Park (volcanic complex)
- Kimberley, and the surrounding area
- Cradle of Humankind World Heritage Site (World Heritage Site)
- uKhahlamba/Drakensberg Park; and finally,
- Table Mountain (c.f. 3.2.2).

Threats that would have an adverse effect on geotourism in South Africa are:

- The present world-wide economic downturn
- Fluctuations in the exchange rate
- Economic downturn in the local economy
- Rising costs of fuel and food
- Land claims and land restitution, resulting in possible fragmented land ownership
- Growing human populations and the ever increasing need for limited resources;
- Declining mining industry in the country
- Intervention by the government as the sole mineral rights holder

- Too little financial support being available for geotourism development.

7.5.3 GOALS AND OBJECTIVES

Seven goals are postulated to encourage the development of geotourism in South Africa:

1. To identify authentic geotourism attractions and products
2. To plan for sustainable geotourism development
3. To develop a geotourism awareness and marketing campaign
4. To conserve geoheritage assets
5. To develop geosites/areas
6. To manage geosites/areas responsible
7. To utilise geo-attractions and geodestinations.

The goals and objectives providing guidance concerning the realisation of the vision of sustainable tourism development and key issues of concern are addressed. They also apply to, build upon, integrate and clarify directives for tourism development (www.capegateway.gov.za/Text/2004/1/whitepapertourism.pdf). The goals must be pursued through the development of strong implementation partnerships with key stakeholders. Sustainable tourism development and growth should be at the very heart of the geotourism strategy (c.f. 5.4, Figure 5.9).

To achieve the goals, they must be broken down into objectives. Each of these objectives then represents a detailed task that needs to be accomplished in a given period, for example, one year (c.f. 5.4). Each of the goals is delivered by achieving a set of objectives and actions to achieve it, as shown below in Tables 7.1-7.7. The proposed objectives can be grouped into programs and main activities. The objectives can then be integrated into the work plan of the tourism management plan as overall tasks. This approach was adapted by the researcher (2008) from the South Australian Tourism Plan (2003) and the City of Cape Town's "*Tourism Development Framework, Business Plan*" of *2005/6 – 2008/9* (www.capetown.gov.za/en/tourism/Documents/Policies%20and%20Publications/Tourism_business_plan.pdf).

A project called "*The geology and geosites of the Kruger National Park, South Africa*" (2004-2006) concerning the documenting of geosites in the KNP will be used as an example for South Africa (c.f. 6.2.1.4, 6.2.1.5, 6.2.1.6). The first step must be to visit the chosen area. The criteria for a geosite should be adhered to (i.e. scientific value, geotourism appeal, educational value, etc). On an overlay on a 1: 250 000 geological map, individual possible geosites must be identified to see if they are representative of a specific geological phenomenon. GPS measurements must be taken in addition to many photographs. Other geosites along main roads must also be documented. Less accessible geosites should also be located and documented. Each of the visited geosites will be shown as dotted numbers on maps mainly along the tourist roads. A number of potential geowalks may also be identified. At a subsequent stage, a panel of geologists and geographers should discuss which sites

should be used or left out for a possible future geopark. The last step is that a priority list of geodestinations to be developed should be compiled. These aspects are listed in Table 7.1.

TABLE 7.1: GOALS, OBJECTIVES AND ACTIONS STEPS TO IDENTIFY GEOSITES/AREAS IN SOUTH AFRICA

GOAL ONE	OBJECTIVE	ACTION STEPS
Identify authentic geotourism attractions and products	Objective 1: Identify individual possible geosites in an area.	Plot the geosite on an overlay on a 1: 250 00 geological map. Take many photographs
Identify geosites/areas in South Africa	Objective 2: Document geosites along the main roads and less accessible geosites.	Take a GPS measurement in the field for latitude and longitude, enabling the geosite to be plotted on a map and also enabling the database to interface with a GIS
	Objective 3: Process the field data	Show each of the visited geosites as dotted numbers on the map
	Objective 4: Future actions	Identify a number of potential geowalks Discuss which sites should be used or left out for a possible future geopark by a panel of geologists and geographers

Strategic planning is the first step for geotourism development when stakeholders should be identified (c.f. 5.2, 5.2.1). In the planning of sustainable geotourism development, certain role players that were identified would be:

- Central and/or local government
- Department of Tourism
- Municipalities
- The management authority of the geosite/area to be developed
- The local tourism industry, individual tourism enterprises
- Community stakeholders
- Financial institutions
- Research institutions: Institute of Tourism Management, University of the North-West
- SANParks, and
- Geologists, geographers, landscape architects.

A proposed "*Geotourism Advisory Forum*" should be established with representatives from the above-mentioned list. They would plan, discuss, develop and implement the geotourism strategy. An important aspect is that practises and policies from overseas institutions/geoparks must be evaluated and adapted to a South African context. It will also be necessary to visit geoparks and geological/mining museums in other parts of the world, largely because South Africa is some 15 years behind what other countries are doing concerning geotourism. The various South African role players should come together to discuss the goals, objectives and actions to achieve them as the foundations for a future national geotourism strategy. The Department of Tourism should handle the legislation. These aspects are summarised in Table 7.2.

TABLE 7.2: GOALS, OBJECTIVES AND ACTIONS STEPS TO PLAN FOR SUSTAINABLE GEOTOURISM DEVELOPMENT

GOAL TWO	OBJECTIVE	ACTION STEPS
Plan for sustainable geotourism development	Objective 1: Prepare a geotourism strategy by identifying strategic opportunities for geosite/geo-area development (c.f. 5.6. 5.6.1, 5.6.2, 5.6.3, 2.3)	The Department of Tourism should rewrite the present heritage legislation Acts and write other necessary enabling legislation.
	Objective 2: Policy formulation	Establish a clear, concise and conclusive policy framework to steer the development of the country's geotourism destinations Assess and balance the costs and the benefits of geotourism in relation to impacts on geodiversity
	Objective 3: Create partnerships and alliances	Build a culture of working together through networking Involve all stakeholders in the planning and development of geotourism Get all stakeholders prepared and involved in a participatory planning process Work in partnerships that rely upon the input and commitment of all multi-sectoral partnerships for success.

		Use various processes to integrate and engage in participatory planning, consensus building, and conflict resolution among all stakeholders.
	Objective 4: Improve effective communication with the general public	Build communication activities with stakeholders to increase awareness, and improve under-standing, of the role of the proposed to-be-formed "*Geotourism Advisory Forum*"
		Interact with entities (for example, Rupert Foundation, De Beers) as the geotourism product is a combination of every element of the visitors' experiences and therefore partnerships need to extend as widely as possible.
		Link persons from different disciplines together in the network while each partner retains its independence
		Create a winning-situation for each partner (financial and/or intellectual profit).
		Facilitate geotourism planning for geotourism and ensure that it is considered in strategic planning processes and initiatives for the development of geotourism
	Objective 5: Geotourism intelligence	Support a knowledge-driven and learning geotourism sector
	Objective 6: Educate people involved in geotourism regarding aspects of sustainability to and then apply this knowledge	Ensure viable, long-term economic geotourism operations, providing socio-economic benefits to all stakeholders that are equably distributed, including stable employment and income-earning opportunities with social services to host communities

	Objective 7: Human capital investment	Build a competent and stable "*Geotourism Advisory Forum*) with the Department of Tourism, the management authority of the geosite/area to be developed and the tourism industry
	Objective 8: Financial sustainability	Utilise and manage financial resources for optimal delivery of the "*Geotourism Advisory Forum's*" responsibility

Because geotourism is a relatively unknown concept to South Africa, one of the priority steps will be to make it known to the general public, communities and tourists through awareness, information, marketing and promotion campaigns that are both extensive and intensive (c.f. 5.7.2, 5.7.2.1). These promotions should be an on-going process. Education should be given at geological museums at geosites, geotrails, open-air geological museums, information centres and during guided excursions. The target groups will be scholars, students, the public and tourists. Thus, interpretative provision at geosites must be planned carefully so visitors can readily understand it. These aspects are summarised in Table 7.3.

TABLE 7.3: GOALS, OBJECTIVES AND ACTIONS STEPS TO DEVELOP A GEO-TOURISM AWARENESS AND MARKETING CAMPAIGN

GOAL THREE	OBJECTIVE	ACTION STEPS
Develop a geo-tourism awareness and marketing campaign	Objective 1: Introduce geotourism as a new market niche experience	Start an extensive awareness campaign to emphasise the importance of geosites/geo-areas Make communities sufficiently aware of and propagate an understanding of the relatively-new concept of geotourism
	Objective 2: Emphasise the unique, diverse rock formations and landscapes of the country's geoheritage. Draw attention to the country's geoheritage	Institute awareness campaigns to promote geotourism
	Objective 3: Increase awareness among well-defined target groups in prioritised external markets.	Raise the awareness of South Africa's geoheritage in the minds of the local/international traveller

	Objective 4: Maximise use of technology to attract visitors through an excellent Internet experience. Objective 5: Destination marketing Objective 6: Undertake aggressive marketing must so that the layman understands the concept of geotourism and its benefits (c.f. 5.7.2.1)	Encourage public awareness, understanding and enjoyment of the georesources Position, market and develop geotourism destinations as exhilarating and exclusive, with a strong and distinctive brand for geotourism at each geosite/geo-area Promote a sustainable approach to development, management and use of geosites/areas to ensure that the natural resource is maintained and enhanced for the benefit of future generations Make use of the following tools: • Site interpretation boards • Books, interpretation leaflets, maps, postcards • Displays of fossil and mineral specimens • Field guides • Geological pedestrian trail that is self-guided or guide-led • Expert-led 'hands-on geological activities' such as fossil or mineral collecting • Geological highway guides or road trails • Geological train trails • Audio-visual presentations that can be shown at many visitor centres • Publicise and encourage TV programs with a geo-tourism application such as "*Walking with dinosaurs*" • Websites and CD-ROMs

Obviously, there will be no geotourism without geoconservation. To protect the geoheritage is the objective of geoconservation. This is being done in Europe through a number of programs and through the activities of many individuals. These geoconservation programs

seek to identify geosites/areas, educate the public about their value and to develop management plans or strategies that will not only protect, but also enhance this value (c.f. 3.6, 3.6.1, 3.6.2). Geoparks in Europe and China, and the National Parks in the USA are effectively being utilised to protect geoheritage (c.f. 4.5, 4.5.1, 4.5.2). These aspects are summarised in Table 7.4.

TABLE 7.4: GOALS, OBJECTIVES AND ACTIONS STEPS TO CONSERVE GEOHERITAGE ASSETS

GOAL FOUR	OBJECTIVE	ACTION STEPS
Conserve geoheritage assets	Objective 1: Preservation of geological and mining heritage necessary for future generations	Examine all legal aspects such as ownership, leases and national geomonuments (c.f. 5.6. 5.6.1, 5.6.2, 5.6.3, 2.3). Involve the Department of Tourism to promulgate geoheritage legislation
	Objective 2: Conservation of geosites/geo-areas (3.6, 3.6.1, 3.6.2)	Apply geoconservation legislation through the management authority of the geosite/area to be developed
	Objective 3: Achieve geotourism that helps to protect geodiversity and conserve the environment (3.6.1, 3.6.2)	Institute joint action, with appropriate inputs, from Governments, site managers, local communities and other stakeholders Implement geoconservation principles for geosites/areas Conserve these treasures for aesthetic, educational and scientific reasons
	Objective 4: Establish geoparks in South Africa (c.f. 4.5, 4.5.1, 4.5.2)	Protect geoheritage, and establish geoconservation principles and management in these parks

When a new geotourism product, is developed, the following guidelines would be central to a geotourism development strategy:

- Geotourism development (developing new activities and attractions, improving service, offering value for money products, increasing income and economic activity attributable to geotourism) must be an integral part of the overall tourism value chain and would be aimed at producing a total experience that is most appealing (of most value) to the target audiences. This implies that the approach to geotourism

development must be based on programmes and initiatives that are related to current and potential market trends and requirements

- Geotourism development must be integrated with broader government economic initiatives (www.capegateway.gov.za/Text/2004/1/whitepapertourism.pdf:44)
- South Africa could set an international example for geotourism development, management and utilisation, while realising an appropriate return to the country, and also the geoconservation of the resources
- The geotourism industry would supplement and enhance other existing tourism products/industries
- Maintaining a research base for the country's geotourism industry

(c.f. 5.9. 5.9.1).

These aspects are summarised in Table 7.5.

TABLE 7.5: GOALS, OBJECTIVES AND ACTIONS STEPS TO DEVELOP GEOSITES/AREAS

GOAL FIVE	OBJECTIVE	ACTION STEPS
Develop geosites/areas	Objective 1: Achieve sustainable geotourism because it must adhere to environmental, economical and social principles	Use and apply existing sustainable practices in order to ensure the future of geotourism
	Objective 2: Implement the action plan with the co-ordinated effort and commitment of a wide range of organisations and individuals	Develop a co-ordinated approach for strategy implementation. A case study (2006) from The Network History of the Earth to the Geopark Schwäbian Geopark (Germany) is an example to achieve this (c.f. 5.2.1)
		Encourage maximum co-operation between the many interests and users of the geoheritage product
	Objective 3: Develop and enhance a strategic infrastructure to support geotourism	Facilitate the development of existing infrastructure
		Create quality geodestinations
	Objective 4: Develop geotourism destinations and products (c.f. 5.9, 5.9.1)	Work to ensure that South Africa has quality geotourism products that match the need and expectations of markets and help to disperse the visitors geographically and seasonally

	Objective 5: Geotourism business development Objective 6: Community based geotourism development	Support the establishment of sustainable geotourism enterprises Support the participation and inclusion of communities in the geotourism industry

Geosites/areas and future geoparks should be responsibly managed, according to sound business practices (c.f. 5.7.1). To be successful as a geotourism destination, actions should be taken by management to establish strong leadership, a shared vision, clear roles and responsibilities, a practical realistic approach and the ability to compromise. These aspects are summarised in Table 7.6.

TABLE 7.6: GOALS, OBJECTIVES AND ACTIONS STEPS TO MANAGE GEOSITES/AREAS

GOAL SIX	OBJECTIVE	ACTION STEPS
Manage geosites/areas responsible	Objective 1: Manage existing geo-assets responsibly, according to sound business principles	Adapt the management of geosites (that are already in place) to incorporate geotourism
	Objective 2: Manage future geosites, geo-attractions and geodestinations	Manage them according to sound sustainable geotourism practices Make each site accessible to a wider range of users Pass them on intact to future generations Build and maintain effective partnerships with industry and industry organisations
	Objective 3: Minimise the damage caused by existing geotourism to sensitive sites	Direct new geotourism (and if possible to redirect existing geotourism) to less sensitive sites
	Objective 4: Achieve successful destination management	Establish actions for: • Strong leadership • A shared vision • Clear roles and responsibilities • A practical realistic approach • Ability to compromise

The ultimate aim must be that geotourism should be utilised by scholars, students, the general public, and tourists for education, learning, enjoyment and enhancement of the geotourism experience (c.f. 4.6, 4.6.1, 4.6.2, 4.6.3, 4.6.4, 4.7, 4.7.1, 4.7.2, 4.7.3, 4.7.4). These aspects are summarised in Table 7.7.

TABLE 7.7: GOALS, OBJECTIVES AND ACTIONS STEPS TO UTILISE GEO-ATTRACTIONS AND GEODESTINATIONS

GOAL SEVEN	OBJECTIVE	ACTION STEPS
Utilise geo-attractions and geodestinations	Objective 1: Utilise geotourism for the education of scholars, students, the general public, and tourists	Create new geotourism experiences that will attract visitors Train suitable geoguides Establish a code of ethics
	Objective 2: Educate geoscientists and geomanagement	Enhance the visitor experience through geo-education and geo-interpretation. Educate the lay-visitor about geotourism. Attend international conferences (c.f. 4.6.3)
	Objective 3: Public enjoyment/ enhancement of the visitor experience through effective interpretation (c.f. 4.7, 4.7.1, 4.7.2, 4.7.3, 4.7.4)	Establish geo-exhibitions (c.f. 4.6.4) Enhance the geotourism experience through better interpretation Improve public enjoyment/visitor experience by providing positive experiences for all who interact with geotourism Maintain a high level of sustainable geotourism and geotourist satisfaction to ensure a meaningful experience for geotourists by raising their awareness of sustainability issues and by promoting sustainable tourism practices amongst them

7.5.4 STRATEGY

The resulting strategy should be based on, refined and adapted from the objectives, goals and actions that have been described above:

1. To develop authentic geotourism destinations and products
2. To plan for sustainable geotourism development
3. To set up a geotourism awareness and marketing campaign
4. To conserve geoheritage assets
5. To develop geosites/areas
6. To manage geosites/areas responsible, and
7. To utilise geo-attractions and geodestinations.

A case study in 2006 from The Network History of the Earth of the Geopark Schwäbian Geopark (Germany) (c.f. 5.2.1) is an example of a strategy that could be used in South Africa:

- **A bottom-up strategy** will be used to start the development of a geosite/geo-area/geopark. Different stakeholders should be brought together, such as:
  - The head of the organisation and administrative staff who will coordinate all efforts
  - NGOs for research, advice and general applicable knowledge;
  - Central, Provincial and local Governments to sort out legal matters and infrastructure provision
  - Financial institutions for funding
  - The tourism sector to attract visitors
  - Nature conservation bodies for geoconservation.
- **A starter project strategy**
  - A common language should be created between the different stakeholders such as academia, tourism, government authorities, private enterprises and nature conservation bodies. This will facilitate communication, exchanging expertise and achieving efficient ways of co-operating on joint projects.
- **A promoter strategy**
  - The network moderator will act as the network promoter. One of the most important tasks will be to promote various mutually beneficial scenarios to the different partners. By doing so, the enthusiasm of the stakeholders will be stimulated.

OTHER STRATEGIES:

- Create and publicise an awareness campaign promoting geotourism as a new niche market
- Offer only the highest quality experiences to visitors
- Develop partnerships
- Packaging and promotion endeavours must be developed and aggressively promoted

- Develop geoparks in South Africa.

The "*White Paper on the Development and Promotion of Tourism*" sets out a range of roles and responsibilities of local government if it is to fulfil the function of 'local tourism'. The institutional guidelines provided by the Department of Environmental Affairs and Tourism (DEAT) (1999) elaborated on the division of role and responsibilities between the different levels of government. The White Paper, and DEAT guidelines, identifies the following categories of functions to be delivered by local government:

- Destination planning and policymaking
- Destination development and management
- Tourism product development
- Tourism training and capacity-building
- Coordination in respect of tourism matters
- Tourism research
- Provision of tourist infrastructure and services
- Tourism marketing strategy, planning, facilitation and implementation
- Tourism information provision
- Regulation and monitoring

(www.capetown.gov.za/en/tourism/Documents/Policies%20and%20Publications/Tourism_business_plan.pdf:5).

Although the above discussion elaborates on various categories of functions to be delivered at a local level, these should first be achieved at a national level. The various role players must come together to discuss the goals, objectives and actions in order to achieve them as a basis for future geotourism strategy for the country. The new Department of Tourism should handle the legislation. The role players that were identified have been described above under goal two (c.f. 7.5.3).

Government should be actively engaged with industry stakeholders, providing coordinated and strategic leadership, to ensure the continued growth and vitality of future geotourism in South Africa. The geotourism strategy should envisage a unified approach to the development of the geotourism industry. By working together within a common framework, stakeholders can achieve much more than if each acts unguided and alone.
The strategy should be focussed on solutions that are designed to respond to the challenges facing the industry. This requires the active involvement of all stakeholders – government can provide leadership in a variety of areas, but government alone is not able to be the source of every solution.

Actions intended to define a geotourism strategy are:

- Use the "*South African National Geological Site and Monuments*" report for GSSA

by Toens (1995) to implement the joint GSSA-CGS geosite inventory urgently. Particular issues that need to be addressed are the principles of inventory development, site classification and database development

- Draw up a geoconservation plan with specific regard to:
  - The extent to which an area or site represents an important geological phenomena;
  - The value of the area to science
  - The value of the area to education
  - The rarity of geological/geomorphological phenomena within an area
  - The degree of disturbance and potential threats
  - The size of the area under review.
- Achieve conservation outcomes by a mutually beneficial alliance between geotourism and geoconservation. This can be achieved through understanding and enjoyment to engender greater appreciation, empathy, advocacy and protection for the georesource
- Use geoscientists at universities and other research institutions to help with research
- Avoid a geoscientific mindset; rather adopt the role of project management. The involvement of geographers, landscape architects, business people and marketers in the process will lead to a multi-disciplinary approach. Networking principles will need to be applied for the successful conclusion of the project (c.f. 5.2.1, Figure 5.2)
- Support information and education programmes intended to promote action in the field of geoheritage conservation
- Establish an integrated policy
- Develop a co-ordinated approach to strategy implementation
- Engage and develop a wide range of partnerships
- Identify solutions for geosite development and management
- Establish guidelines for more sustainable management plans
- Understand and target the necessary market. Understanding the broad market trends and the needs of specific segments is critical. This will involve the development of specialised products based on the inherent attributes of an area
- Management and marketing of individual geosites should be undertaken according to sound business principles
- The marketing of geotourism should begin with an awareness campaign in newspapers, magazines, radio and also on television, about geosites, geoconservation and geoparks
- Enhance the geotourism experience
- Add value to existing attributes to achieve a richer tourism experience that helps also to diversify the local economy. This could include accommodation, sales outlets, conference facilities and dining, all in association with established industries, or with industries that could be established to cater to the specific needs, providing mutual benefits to visitors and hosts alike
- Tourism is not encouraged merely for its own sake. It is an economic and community development tool, and must therefore take into account the benefits that both the host community and the visitor seek

- Build local capacity by involving the community. Collaborate with other businesses and stakeholders
- Hold regular meetings with all the relevant stakeholders
- Keep regular and cordial contact with staff of the Department Tourism Visit geoparks in Europe to see what they are achieving , how they are managed and how they are financed. Examine sustainable development and geo-education in these geoparks
- Invite a small number of knowledgeable geoscientists from Europe (Germany, France, Switzerland, Greece, the UK and Austria) to examine the South Africa offering and make informed input into its future direction as a geotourism destination
- Locate a few possible geosites in a specific area with the existing infrastructure that could be included in a geopark. Aspects such as accessibility, accommodation, future development, management and site condition monitoring should all be addressed. Begin with Vredefort, Barberton, Witwatersrand, Pilanesberg, Pilgrim's Rest, Drakensberg, Golden Gate, Pretoria-Cullinan, Table Mountain, Kimberley, Richtersveld and Cango Caves as potential future geoparks
- Develop a national strategy and guidelines for the conservation of a geopark. A geopark must be managed by a clearly defined structure able to enforce protection, enhancement and sustainable development policies within its territory. This could best be done according to the following strategic framework (Schutte, 2000)
    - Achieve authenticity
    - Evaluate progress
    - Adapt the plan when necessary
    - Evaluate success

(Schutte: 2000a, 2000b, 2006a, 2006b, 2007a, 2007b) (c.f. 2.3, 5.3, 7.5.3).

7.5.5 IMPLEMENTATION AND EVALUATION (c.f. 5.8, 7.5.3)

To implement the geotourism plan, the following guidelines should be implemented:

- Use the findings of the SWOT analysis from the case studies as a basis for geotourism development (c.f. 7.5.3)
- Make optimal use of environmental resources that constitute key elements in geotourism development, maintaining essential ecological processes and helping to conserve natural heritage and geodiversity
- To achieve sustainability, the following actions should be undertaken:
    - Sustainability issues should be examined in detail
    - Apply overseas research/experience in geotourism development as necessary but tempered with the realisation that the principle of sustainability is not yet well understood in third world countries
    - Better awareness and knowledge of geotourism should be achieved for visitors in all the areas or places
    - The augmentation and integration of economic, social and environmental principles is a prerequisite

Even with a well-prepared sustainable geotourism strategy, a sustainable geotourism development is a new challenge for all cases. Even though each example may have a sufficient number of stakeholders, much more can be still be done so that they all work together by means of networking

- Apply the findings about sustainability (from the case studies) in practice

(c.f. 7.5.3).

Sustainable geotourism can be attained by:

- Making optimal use of the environmental resources that constitute a key element in tourism development, while maintaining essential ecological processes and helping to conserve natural heritage and geodiversity
- Respecting the socio-cultural authenticity of host communities, conserving their built and living cultural heritage and traditional values, and so contributing to inter-cultural understanding and tolerance
- Ensuring viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are equitably distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation
- Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, if necessary, introducing preventive and/or corrective measures
- Sustainable tourism must also maintain a high level of tourist satisfaction, thus ensuring a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them (Sustainable Development of Tourism Conceptual Definition (WTO, 2004)).
- Applying the practical example of the South Australian Tourism Plan 2003-2008 where sustainability and its relationship to the triple bottom line (TBL) were described (c.f. 5.5.1, 5.7, Figure 5.11 and Figure 2.3). It could well be used for geotourism in South Africa. When referring to environmental objectives, "biodiversity" must, of course, be replaced with "geodiversity". To implement the action plan which follows will require the co-ordinated effort and commitment of a wide range of organisations and individuals (c.f. 2.2, 2.3, 2.4, 7.5.3).

The following should be implemented to manage geosites in South Africa:

- Because geotourism is a new tourism product, geosites must be managed according to sound business principles. Attention must also be given to resource management, performance and the management of geosite attractions
- The growth of geotourism must be managed in such a way as to prevent unsustainable pressures that damages or destroys geodiversity and ecosystem processes.
- Geotourism must be managed with care

- Interpretation is a very important component of geotourism, that is,. to explain, perhaps visually, how the rocks were formed
- Maps of geosites and 'related aspects' such as locality, history, photos of geosites, interpretations and education posters for visitors, and present activities should be compiled - both at small scales for overview and presentation purposes, and at larger scales, for practical applications and for discussions with the local regional key players
- All the visual results should be presented in publications, at oral and at poster presentations.

Marketing principles will be applied with the emphasis on education, communication and the sales dimensions. Aggressive marketing with brochures, articles in journals and TV programs being produced, all focussed on the attraction of more tourists to geosites/areas, is a pre-requisite. Attention must also be given to resource management, performance and the management of geo-attractions (c.f. 5.7.1, 7.5.3).

The following should be borne in mind when marketing geotourism in South Africa:

- Strategic marketing principles should be applied. An awareness campaign to emphasise the importance of geology would be the starting point
- Some geosites can be developed into geo-attractions, while only a few can become geodestinations
- Educational aspects to be looked at include curriculum guidelines for geotourism management education, museums at geosites, geotrails, open-air geological museums, information centres, guided excursions and formal education
- Because the target groups will be scholars, students, the general public and tourists, interpretative provision at geosites must be planned carefully so all visitors can appropriately understand the information provided
- Geosites should be utilised for maximum pleasure, enjoyment and education
- Geosites will be the primary attraction, while the surrounding tourist destinations will be "*add-ons*"
- Sustainable tourism is possible when these criteria are met (c.f. 5.7.2. 5.7.2.1).

Interpretation directed at visitors should be carried out and made available:

- It is an education-based activity that reveals meanings behind historic sites, their people and their stories
- It takes several forms including plays and exhibits, printed brochures and maps, signs, audio presentations and guided tours. Interpretation has the ability to direct people away from sensitive areas and educate them about the need to behave respectfully
- It is essentially a process of communication or explanation for visitors of the significance of the place they are visiting. Personal interpretation is the most effective means of interaction. It also educates and entertains visitors in a manner that causes them to reflect about environmental values (c.f. 7.5.3).

7.6 RECOMMENDATIONS FOR FURTHER GEOTOURISM RESEARCH IN SOUTH AFRICA

Further issues that need to be researched in the future are given below.

7.6.1 IDENTIFY OTHER AREAS FOR UNESCO WORLD GEOPARKS IN SOUTH AFRICA (c.f. 7.5.2.1, 7.5.3)

The following should be examined:

- The relationship between World Heritage Sites and geoparks to see which is most appropriate for the country
- Determination of the feasibility of future geoparks
- Preparation of well-conceived management plans for every new geosite/area to be developed in a geopark
- The application and integration of geoconservation sites into geoparks.

Themes that should be addressed with regard to sustainable geotourism development are:

- The role of communication in planning and implementing sustainable tourism policies and strategies
- Communication for community involvement in sustainable tourism development.
- The role of communication in promoting corporate social responsibility in sustainable tourism development
- The role of communication in linking sustainable tourism products to markets
- Interpreting tourism destinations and orienting visitors.

The multiple approaches that communication can bring to successful and sustainable tourism development should be researched. Possible sub-themes could be:

- The involvement of stakeholders (including local communities) in decision-making
- The facilitation of networking and the sharing of information and knowledge
- The catalysation of collaborative action
- How are private sector investments to be encouraged?
- What advocacy is necessary to achieve policy change?
- How can skills and capacity best are built?
- How can expectations be controlled?
- What support will foster the adoption of standards?
- How can a demand for sustainable products be developed?
- What links tourism products to markets?
- The explanation of cultural norms to visitors
- The enhancement of visitor experiences

(www.usaid.gov/our_work/agriculture/landmanagement/pubs/commun_sust_tourism.pdf).

Other aspects that should be researched are:

- The roles of interpretation
- The interpretive planning process, and
- The challenges managers face in delivering interpretation.

The researcher is of the opinion that "*Geoheritage interpretation is necessary because geoheritage underpins the landscapes and geodiversity that exists. The most critical aspect is interpretation for visitors and tourists. The benefits are that interpretation is an effective way of adding value to the experience, employing more locals and creating a cultural connection for visitors. It has the ability to direct people away from sensitive areas and educate them about the need to behave respectfully. It also educates and entertains visitors that cause them to reflect about environmental values. The role of interpretation is to make people more aware of what they visit, to provide knowledge which increases their understanding, and to promote interest which leads to greater understanding enjoyment and responsibility*" (c.f. 4.8). These results can be used as a further background for interpretation as a communication tool (c.f. 4.7, 4.7.1, 4.7.2, 4.7.3, 4.7.4).

7.6.2 INTERPRETATION AS A COMMUNICATION TOOL FOR GEOTOURISM

Interpretation is a communication process that is designed to reveal the meanings and relationships of cultural and natural heritage, through involvement with objects, artefacts, landscapes and sites.

Interpretation can viewed from a visitor's perspective as a means of value adding to the visit experience because of the added interest created when more is known and understood about an attraction or experience. Another point of view places the responsibility back with the visitor to arrive at their own understanding based on their collective experiences.

Freeman Tilden (1977) proposed six interpretation principles:

1. Interpretation should relate to what is being displayed or described to something within the personality and life experience of the visitor
2. Information itself is not interpretation because the latter is revelation based on information. It is therefore critical to provide visitors with new information and transmit it in a way that inspires
3. Interpretation is an art that brings together many other arts, whether the materials that are being presented are historical, architectural or scientific
4. The primary objective of interpretation is not instruction but rather provocation
5. Interpretation should be more holistic rather than be made up of simple parts, and
6. Interpretation addressed to different visitor groups should follow a fundamentally different approach.

The above-mentioned criteria can form the basis to research the objectives.

For the communication to be interpretive, it must:

- Provoke curiosity, attention and interest in the audience
- Relate the message to the everyday life of the visitor
- Reveal why the message is important for the visitor
- Have message unity in terms of the right colours, designs and music
- Address the whole or have a single take home message for the visitor.

Two questions should be consistently addressed when communication techniques are designed:

1. "*Why would the visitor want to know that*?"
2. "*How is the visitor expected to use the information interpreted to them*?"

(www.petrifiedforest.gr/NEW%20pf/2008-Intensive-Course-Lesvos-Greece-1stCircular-Dec.pdf).

7.6.3 PERCEPTIONS OF COMMUNITIES OF GEOTOURISM DEVELOPMENT

Milne (1988) states that communities exist at all levels, from a neighbourhood to an international free-trade territory, so it is important to establish the appropriate geographical scale for planning, whether this be local, regional or national. Where the concept is defined, researchers usually refer to a group of people living in the same locality, with some also including a notion of an ecosystem or habitat, in their definitions. Another view is that the community is an aggregation of people at a particular locale, and 'community' which is characterised by social interaction, involving intimacy, emotional depth, moral commitment, social cohesion and continuity in time (Bernard, 1973, as quoted by Milne 1988).

Azura and Salimbangon (1998) believe that tourism is an exhaustive interrelation among different industries and sectors such as accommodation, transportation and Food and Beverage among others. It also involves the movement of the tourists from their point of origin to their selected destination. In this process, tourists come across different organisations or individuals that provide them with various tourism services and products. At the destination itself, the tourists expect the best quality of tourism services and products they can get. Thus, it is important that the host community should be appreciative and supportive of tourism development in their locality. Their attitudes toward tourism and perceptions of its impact on the community life must be continually assessed. Tourism development can bring about different changes and these can be perceived by the residents as either having positive or negative influences upon them. Therefore, investigating residents' perceptions of tourism development is an effective method of analysing the impacts of tourism in a locality (http://tourismtalks.blogspot.com/2007/12/chapter-1-residents-perception-on.html)

The following should be researched with regard to geotourism development in an area:

- Determine communities perceptions on development

- Determine the current status of development and identify the residents' perception on the impacts of these developments
- Determine how the successful development of the local tourism industry requires effective planning that both recognises tourists' demands and emphasises the values of the local host community
- Determine how the leaders and residents of the community can foster pride and establish responsibility for the process of development. Thus, how can the community utilise local resources, as well as local organisations, to create tourism as a supplement to geotourism?
- how community-based development empowers people to be more aware of the value of their community assets - their culture, heritage, cuisine and lifestyle
- Determine how the local community can contribute to tourism that generally plays an important role in improving the living standards of the host communities
- Identify the positive and negative impacts of development - what is most crucial is the issue of alleviating possible negative consequences
- Involve local residents in the planning of development - all tourism planning should be based on the goals and priorities of the residents
- Initiating tourism development without proper planning and integration with local values and the environment can bring social, cultural, environmental, and economic damage to host communities
- Determine how decision makers can better utilise resident perspectives to enable appropriate community planning and greater consensus on the direction that future development should take
- Focus on resident perceptions in relation to tourism development
- Determine if residents, who depend most upon tourism, express the most favourable attitudes
- Determine if, as distance from the tourist zone increases, the impact of tourism is perceived less favourably
- Should the community consider the local, regional and international markets all at once, as one begins a serious tourism development effort?
- Establish a distinct geotourism icon for a place
- Determine what the major positive contributions of tourism (creation of jobs and business opportunities, increased availability for recreation, shopping and entertainment, and promotion of community pride, tolerance and a stronger sense of cultural identity within the host community) are?
- Establish excellent interpretation facilities
- Begin an awareness campaign
- Determine what communities do best rather than trying to replicate other tourist attractions.

To come to a conclusion, research should identify how the concerns and sentiments of residents can serve as useful guide to the development, for they encompass community values. Furthermore, it should be determined how friction between visitors and residents could be minimised and a mutually beneficial partnership between the host community and the tourism industry thereafter be created.

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APPENDIX:
TOURISM AND GEOTOURISM DECLARATIONS AND RELATED DOCUMENTS

1. DECLARATION OF THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT. STOCKHOLM - 1972

2. DIGNE DECLARATION. DECLARATION OF THE RIGHTS OF THE MEMORY OF THE EARTH - 1991

3. RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT - 1992

4. CHARTER FOR SUSTAINABLE TOURISM - 1995

5. QUÉBEC DECLARATION ON ECOTOURISM – 2002

6. THE PRINCIPLES OF THE GEOTOURISM CHARTER – 2002

7. FIFTH WORLD PARKS CONGRESS RESOLUTION 5.12: TOURISM. TOURISM AS A VEHICLE FOR CONSERVATION AND SUPPORT OF PROTECTED AREAS – 2003

8. WASHINGTON DECLARATION ON TOURISM AS A SUSTAINABLE DEVELOPMENT STRATEGY - 2004

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1. DECLARATION OF THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT STOCKHOLM - 1972

(http://www.are.admin.ch/imperia/md/content/are/nachhaltigeentwicklung/international.pdf)

The United Nations Conference on the Human Environment, having met at Stockholm from 5 to 16 June 1972, having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment, Proclaims that:

1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself.'
2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.
3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time, man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth:
   - Dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources.
   - Gross deficiencies, harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.
4. In the developing countries most of the environmental problems are caused by under-development. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. For the same purpose, the industrialized countries should make efforts to reduce the gap themselves and the developing countries. In the industrialized countries, environmental problems are generally related to industrialization and technological development.

5. The natural growth of population continuously presents problems for the preservation of the environment, and adequate policies and measures should be adopted, as appropriate, to face these problems. Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard work, continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.
6. A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build, in collaboration with nature, a better environment. To defend and improve the human environment for present and future generations has become an imperative goal. for mankind-a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of worldwide economic and social development.

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7. To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future. Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International cooperation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive cooperation among nations and action by international organizations in the common interest.

The Conference calls upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity. Principles States the common conviction that:

Principle 1
Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.

Principle 2
The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

Principle 3
The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

Principle 4
Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat, which are now gravely imperilled by a combination of adverse factors. Nature conservation, including wildlife, must therefore receive importance in planning for economic development.

Principle 5
The non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that benefits from such employment are shared by all mankind.

Principle 6
The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of ill countries against pollution should be supported.

Principle 7

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States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Principle 8
Economic and social development is essential for ensuring a favorable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

Principle 9
Environmental deficiencies generated by the conditions of under-development and natural disasters pose grave problems and can best be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

Principle 10
For the developing countries, stability of prices and adequate earnings for primary commodities and raw materials are essential to environmental management, since economic factors as well as ecological processes must be taken into account.

Principle 11
The environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view to reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

Principle 12
Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate- from their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose.

Principle 13
In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve environment for the benefit of their population.

Principle 14
Rational planning constitutes an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment.

Principle 15
Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximum social, economic and environmental benefits for all. In this respect projects which arc designed for colonialist and racist domination must be abandoned.

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Principle 16
Demographic policies which are without prejudice to basic human rights and which are deemed appropriate by Governments concerned should be applied in those regions where the rate of population growth or excessive population concentrations are likely to have adverse effects on the environment of the human environment and impede development.

Principle 17
Appropriate national institutions must be entrusted with the task of planning, managing or controlling the 9 environmental resources of States with a view to enhancing environmental quality.

Principle 18
Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

Principle 19
Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment, but, on the contrary, disseminates information of an educational nature on the need to project and improve the environment in order to enable mal to develop in every respect.

Principle 20
Scientific research and development in the context of environmental problems, both national and multinational, must be promoted in all countries, especially the developing countries. In this connection, the free flow of up-to-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems; environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

Principle 21
States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22
States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

Principle 23
Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

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Principle 24
International matters concerning the protection and improvement of the environment should be handled in a cooperative spirit by all countries, big and small, on an equal footing.
Cooperation through multilateral or bilateral arrangements or other appropriate means is essential to effectively control, prevent, reduce and eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all States.

Principle 25
States shall ensure that international organizations play a coordinated, efficient and dynamic role for the protection and improvement of the environment.

Principle 26
Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

21st plenary meeting
16 June 1972

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2. DIGNE DECLARATION OF THE RIGHTS OF THE MEMORY OF THE EARTH - 1991

(http://www.progeo.org.se/digne.html)

1. *"Planets, like people, have their own life history - they are born, they mature and die. For planets, as for people, each life history is unique: the time has come to recognise the uniqueness of the Earth.*
2. *Our planet, the Earth, is the only bond which unites all mankind. We are, each and everyone of us, linked to the Earth, and it is the link between us, and indeed all life*
3. *The Earth is 4.5 thousand million years old and the cradle of life; life which has undergone many metamorphoses and renewals through geological time. Its long evolutions, and slow maturation, have shaped the environment in which we live.*
4. *Our history and the history of the Earth cannot be separated. Its origins are our origins, its history is our history and its future will be our future.*
5. *The surface of the Earth is our environment. This environment is different, not only from that of the past, but also from that of the future. We are the will pass.*
6. *Just as an ancient tree retains the record of its life and growth, the Earth retains 'memories' of the past inscribed both in its depths and on its surface, in the rocks and in the landscape, a record which can be read and translated.*
7. *We have always been aware of the need to preserve our memories - our cultural heritage. Now the time has come to protect our natural heritage. The past of the Earth is no less important than that of Man. It is time for us to learn to protect this Earth heritage, and by doing so learn about the past of the Earth, to learn to read this 'book', the record in the rocks and the landscape, which was mostly written before our advent.*
8. *Man and the Earth share a common heritage, of which we and our governments are but the custodians. Each and every human being should understand that the slightest damage could lead to irreversible losses for the future. In undertaking any form of development, we should respect the singularity of this heritage.*
9. *The participants of the First International Symposium on the Conservation of our Geological Heritage, including over 100 specialists from more than 30 nations, urgently request all national and international authorities to take into consideration and to protect this heritage, by all the legal, financial and organisational measures that may be necessary."*

(This is the English translation used by ProGEO of the original Digne les Bains Declaration (1991), which was conceived as a French text, modified and accepted by the EWGESC, and adopted at Digne, France, by delegates from more than thirty countries in Europe.)

3. RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT - 1992

(www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163)

Having met at Rio de Janeiro from 3 to 14 June 1992,

Reaffirming the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972 and seeking to build upon it,
With the goal of establishing a new and equitable global partnership through the creation of new levels of cooperation among States, key sectors of societies and people,

Working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system,

Recognizing the integral and interdependent nature of the Earth, our home,

Proclaims that:

Principle 1
Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 2
States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 3
The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Principle 4
In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Principle 5
All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

Principle 6
The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

Principle 7
States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8
To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Principle 9
States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Principle 10
Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

Principle 11
States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 12
States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better

address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13
States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 14
States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15
In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16
National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach
that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

Principle 17
Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Principle 18
States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

Principle 19
States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse trans-boundary environmental effect and shall consult with those States at an early stage and in good faith.

Principle 20
Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

Principle 21
The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

Principle 22
Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Principle 23
The environment and natural resources of people under oppression, domination and occupation shall be protected.

Principle 24
Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

Principle 25
Peace, development and environmental protection are interdependent and indivisible.

Principle 26
States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

Principle 27
States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

Source: Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972

(United Nations publication, Sales No. E.73.II.A.14 and corrigendum), chap. I.

DECLARATIONS AND DOCUMENTS

I. General

1. Tourism activities should be environmentally, economically, socially, and culturally sustainable. Development and management of tourism activities should be guided by the objectives, principles and commitments laid down in the Convention on Biological Diversity.
2. Tourism activities which directly or indirectly contribute to the conservation of nature and biological diversity and which benefit local communities should be promoted by all stakeholders.
3. To conserve nature and biological diversity as a major resource of tourism activities, all necessary measures should be taken to ensure that the integrity of ecosystems and habitat is always respected. Additional burdens from tourism development should be avoided in areas where nature is already under pressure from tourism activities. Preference should be given to the modernisation and renovation of existing tourism facilities.
4. Measures inspired by the principle of precautionary action should be taken to prevent and minimise damage caused by tourism to biological diversity. Such measures should include monitoring of existing activities and assessment of environmental impacts of proposed new activities, including the monitoring of the negative effects of wildlife viewing.
5. Tourism activities which use environmentally sound technologies for saving water and energy, prevent pollution, treat waste water, avoid the production of solid waste and encourage recycling should be promoted to the fullest extent. Similarly, tourism activities which encourage the use of public and non-motorised transport should be supported wherever possible.
6. All stakeholders including governments, international organisations, the private sector and environmental groups should recognise their common responsibilities to achieve sustainable forms of tourism. Policies and, where appropriate, legislation, environmental economic instruments and incentives should be developed to assure that tourism activities meet the needs of nature and biological diversity conservation, including mobilising fund from tourism.
7. Concepts and criteria of sustainable tourism should be developed and incorporated in education and training programmes for tourism professionals. The general public should be informed and educated about the benefits of protecting nature and conserving biodiversity through sustainable forms of tourism. Results of the research and concepts of sustainable tourism should be increasingly disseminated and implemented.

II. Specific

8. Inventories of tourism activities and attractions should be developed, taking into account the impacts on ecosystems and biological diversity. Coordinated efforts of governments, the private sector and all other stakeholders should be undertaken to agree on criteria to measure and assess the impacts of tourism on nature and biological diversity. In this regard, technical and scientific cooperation should be subject to prior environmental impact assessment.
9. Tourism activities, including tourism planning, measures to provide tourism infrastructure, and tourism operations, which are likely to have significant impacts on nature and biological diversity should be subject to prior environmental impact assessment.
10. Tourism activities should be planned at the appropriate levels with a view to integrate socio-economic, cultural and environmental considerations at all levels. Development, environment, and tourism planning should be integrated processes. All efforts should be made to ensure that integrated tourism plans are implemented and enforced.
11. Tourism should be based on environmentally friendly concepts and modes of transport. Negative impacts of transport on the environment should be reduced, paying particular attention to environmental impacts of road and air traffic, especially in ecologically sensitive areas.
12. Sports and outdoor activities, including recreational hunting and fishing, particularly in ecologically sensitive areas should be managed in a way that they fulfil the requirements of nature and biological diversity conservation and comply with the existing regulations on conservation and sustainable use of species.
13. Special care should be taken that living animals and plants, and products made thereof for souvenirs, are offered for sale only on the basis of a sustainable and environmentally sound use of the natural resources and in conformity with national legislation and international agreements.
14. Whenever possible and appropriate, economic instruments and incentives including awarding of prizes, certificates and eco-label for sustainable tourism should be used to encourage the private sector to meet its responsibilities for achieving sustainable tourism. The abolition of economic incentives encouraging environmentally unfriendly activities should be strived for.
15. Tourism should be developed in a way so that it benefits the local communities, strengthens the local economy, employs local workforce and wherever ecologically sustainable, uses local materials, local agricultural products and traditional skills. Mechanisms, including policies and legislation should be introduced to ensure the flow of benefits to local communities. Tourism activities should respect the ecological characteristics and capacity of the local environment in which they take place. All efforts should be made to respect traditional lifestyles and cultures.
16. Tourism should be restricted, and where necessary prevented, in ecologically and culturally sensitive areas. All forms of mass tourism should be avoided in those areas. Where existing tourism activities exceed the carrying capacity, all efforts

should be made to reduce negative impacts from tourism activities and to take measures to restore the degraded environment.

17. Tourism in protected areas should be managed in order to ensure that the objectives of the protected area regimes are achieved. Wherever tourism activities may contribute to the achievement of conservation objectives in protected areas, such activities should be encouraged and promoted, also as cases to test in a controlled manner the impact of tourism and biodiversity. In highly vulnerable areas, nature reserves and all other protected areas requiring strict protection, tourism activities should be limited to a bearable minimum.
18. In coastal areas all necessary measures should be taken to ensure sustainable forms of tourism, taking into account the principles of integrated coastal area management. Particular attention should be paid to the conservation of vulnerable zones, such as small islands, coral reefs, coastal waters, mangroves, coastal wetlands, beaches and dunes.
19. Tourism in mountain areas should also be managed in environmentally appropriate ways. Tourism in sensitive mountain regions should be regulated so that the biological diversity of these areas can be preserved.
20. In all areas where nature is particularly diverse, vulnerable and attractive, all efforts should be made to meet the requirement of nature protection and biological diversity conservation Particular attention should be paid to the conservation needs in forest areas, grasslands, fresh water eco-systems, areas of spectacular beauty, arctic and antarctic eco-systems.

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4. CHARTER FOR SUSTAINABLE TOURISM - 1995

(http://www.insula.org/tourism/charte.htm)

We, the participants at the World Conference on Sustainable Tourism, meeting in Lanzarote, Canary Islands, Spain, on 27-28 April 1995,

Mindful that tourism, as a worldwide phenomenon, touches the highest and deepest aspirations of all people and is also an important element of socioeconomic and political development in many countries.

Recognizing that tourism is ambivalent, since it can contribute positively to socio- economic and cultural achievement, while at the same time it can contribute to the degradation of the environment and the loss of local identity, and should therefore be approached with a global methodology.

Mindful that the resources on which tourism is based are fragile and that there is a growing demand for improved environmental quality.

Recognizing that tourism affords the opportunity to travel and to know other cultures, and that the development of tourism can help promote closer ties and peace among peoples, creating a conscience that is respectful of the diversity of culture and life styles.

Recalling the Universal Declaration of Human Rights, adopted by the General Assembly of United Nations, and the various United Nations declarations and regional conventions on tourism, the environment, the conservation of cultural heritage and on sustainable development.

Guided by the principles set forth in the Rio Declaration on the Environment and Development and the recommendations arising from Agenda 21.

Recalling previous declarations on tourism, such as the Manila Declaration on World Tourism, the Hague Declaration and the Tourism Bill of Rights and Tourist Code.

Recognizing the need to develop a tourism that meets economic expectations and environmental requirements, and respects not only the social and physical structure of destinations, but also the local population.

Considering it a priority to protect and reinforce the human dignity of both local communities and tourists.

Mindful of the need to establish effective alliances among the principal actors in the field of tourism so as to fulfil the hope of a tourism that is more responsible towards our common heritage.

APPEAL to the international community and, in particular, URGE governments, other public authorities, decisionmakers and professionals in the field of tourism, public and private associations and institutions whose activities are related to tourism, and tourists themselves, to adopt the principles and objectives of the Declaration that follows:

1. Tourism development shall be based on criteria of sustainability, which means that it must be ecologically bearable in the long term, as well as economically viable, and ethically and socially equitable for local communities. Sustainable development is a guided process which envisages global management of resources so as to ensure their viability, thus enabling our natural and cultural capital, including protected areas, to be preserved. As a powerful instrument of development, tourism can and should participate actively in the sustainable development strategy. A requirement of sound management of tourism is that the sustainability of the resources on which it depends must be guaranteed.

2. Tourism should contribute to sustainable development and be integrated with the natural, cultural and human environment; it must respect the fragile balances that

characterize many tourist destinations, in particular small islands and environmentally sensitive areas. Tourism should ensure an acceptable evolution as regards its influence on natural resources, biodiversity and the capacity for assimilation of any impacts and residues produced.

3. Tourism must consider its effects on the cultural heritage and traditional elements, activities and dynamics of each local community. Recognition of these local factors and support for the identity, culture and interests of the local community must at all times play a central role in the formulation of tourism strategies, particularly in developing countries.

4. The active contribution of tourism to sustainable development necessarily presupposes the solidarity, mutual respect and participation of all the actors, both public and private, implicated in the process, and must be based on efficient cooperation mechanisms at all levels: local, national, regional and international.

5. The conservation, protection and appreciation of the worth of the natural and cultural heritage afford a privileged area for cooperation. This approach implies that all those responsible must take upon themselves a true challenge, that of cultural, technological and professional innovation, and must also undertake a major effort to create and implement integrated planning and management instruments.

6. Quality criteria both for the preservation of the tourist destination and for the capacity to satisfy tourists, determined jointly with local communities and informed by the principles of sustainable development, should represent priority objectives in the formulation of tourism strategies and projects.

7. To participate in sustainable development, tourism must be based on the diversity of opportunities offered by the local economy. It should be fully integrated into and contribute positively to local economic development.

8. All options for tourism development must serve effectively to improve the quality of life of all people and must influence the so- cio-cultural enrichment of each destination.

9. Governments and the competent authorities, with the participation of NGOs and local communities, shall undertake actions aimed at integrating the planning of tourism as a contribution to sustainable development.

10. In recognition of economic and social cohesion among the peoples of the world as a fundamental principle of sustainable development, it is urgent that measures be promoted to permit a more equitable distribution of the benefits and burdens of tourism. This implies a change of consumption patterns and the introduction of pricing methods which allow environmental costs to be internalised. Governments and multilateral organizations should prioritize and strengthen direct and indirected aid to tourism projects which contribute to improving the quality of the environment. Within this context, it is necessary to explore thoroughly the application of internationally harmonised economic, legal and fiscal instruments to ensure the sustainable use of resources in tourism.

11. Environmentally and culturally vulnerable spaces, both now and in the future, shall be given special priority in the matter of technical cooperation and financial aid for sustainable tourism development. Similarly, special treatment should be given to zones that have been degraded by obsolete and high impact tourism models.

12. The promotion of alternative forms of tourism that are compatible with the principles of sustainable development, together with the encouragement of diversification represent a guarantee of stability in the medium and the long term. In this respect there is a need, for many small islands and environmentally sensitive areas in particular, to actively pursue and strengthen regional cooperation.

13. Governments, industry, authorities, and tourism-related NGOs should promote and participate in the creation of open networks for research, dissemination of information and transfer of appropriate knowledge on tourism and environmentally sustainable tourism technologies.

14. The establishment of a sustainable tourism policy necessarily requires the support and promotion of environmentally-compatible tourism management systems, feasibility studies for the transformation of the sector, as well as the implementation of demonstration projects and the development of international cooperation programmes.

15. The travel industry, together with bodies and NGOs whose activities are related to tourism, shall draw up specific frameworks for positive and preventive actions to secure sustainable tourism development and establish programmes to support the implementation of such practices. They shall monitor achievements, report on results and exchange their experiences.

16. Particular attention should be paid to the role and the environmental repercussions of transport in tourism, and to the development of economic instruments designed to reduce the use of non-renewable energy and to encourage recycling and minimization of residues in resorts.

17. The adoption and implementation of codes of conduct conducive to sustainability by the principal actors involved in tourism, particularly industry, are fundamental if tourism is to be sustainable. Such codes can be effective instruments for the development of responsible tourism activities.

18. All necessary measures should be implemented in order to inform and promote awareness among all parties involved in the tourism industry, at local, national, regional and international level, with regard to the contents and objectives of the Lanzarote Conference.

5. QUÉBEC DECLARATION ON ECOTOURISM - 2002

(http://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf)

In the framework of the UN International Year of Ecotourism, 2002, under the aegis of the United Nations Environment Programme (UNEP) and the World Tourism Organization (WTO), over one thousand participants coming from 132 countries, from the public, private and non-governmental sectors met at the World Ecotourism Summit, hosted in Québec City, Canada, by Tourisme Québec and the Canadian Tourism Commission, between 19 and 22 May 2002.

The Québec Summit represented the culmination of 18 preparatory meetings held in 2001 and 2002, involving over 3,000 representatives from national and local governments including the tourism, environment and other administrations, private ecotourism businesses and their trade associations, non-governmental organizations, academic institutions and consultants, intergovernmental organizations, and indigenous and local communities.

This document takes into account the preparatory process, as well as the discussions held during the Summit. It is the result of a multistakeholder dialogue, although it is not a negotiated document. Its main purpose is the setting of a preliminary agenda and a set of recommendations for the development of ecotourism activities in the context of sustainable development.

The participants at the Summit acknowledge the World Summit on Sustainable Development (WSSD) in Johannesburg, August/September 2002, as the ground-setting event for international policy in the next 10 years, and emphasize that, as a leading industry, the sustainability of tourism should be a priority at WSSD due to its potential contribution to poverty alleviation and environmental protection in endangered ecosystems. Participants therefore request the UN, its organizations and member governments represented at this Summit to disseminate the following Declaration and other results from the World Ecotourism Summit at the WSSD.

The participants to the World Ecotourism Summit, aware of the limitations of this consultative process to incorporate the input of the large variety of ecotourism stakeholders, particularly non-governmental organizations (NGOs) and local and indigenous communities,

Recognize that ecotourism embraces the principles of sustainable tourism, concerning the economic, social and environmental impacts of tourism. It also embraces the following specific principles which distinguish it from the wider concept of sustainable tourism:

- Contributes actively to the conservation of natural and cultural heritage,
- Includes local and indigenous communities in its planning, development and operation, and contributing to their well-being,
- Interprets the natural and cultural heritage of the destination to visitors,
- Lends itself better to independent travellers, as well as to organized tours for small size groups.

Acknowledge that tourism has significant and complex social, economic and environmental implications, which can bring both benefits and costs to the environment and local communities,

Consider the growing interest of people in travelling to natural areas, both on land and sea,

Recognize that ecotourism has provided a leadership role in introducing sustainability practices to the tourism sector,

Emphasize that ecotourism should continue to contribute to make the overall tourism industry more sustainable, by increasing economic and social benefits for host communities, actively contributing to the conservation of natural resources and the cultural integrity of host communities, and by increasing awareness of all travellers towards the conservation of natural and cultural heritage,

Recognize the cultural diversity associated with many natural areas, particularly because of the historical presence of local and indigenous communities, of which some have maintained their traditional knowledge, uses and practices many of which have proven to be sustainable over the centuries,

Reiterate that funding for the conservation and management of biodiverse and culturally rich protected areas has been documented to be inadequate worldwide,

Recognize further that many of these areas are home to peoples often living in poverty, who frequently lack adequate health care, education facilities, communications systems, and other infrastructure required for genuine development opportunity,

Affirm that different forms of tourism, especially ecotourism, if managed in a sustainable manner can represent a valuable economic opportunity for local and indigenous populations and their cultures and for the conservation and sustainable use of nature for future generations and can be a leading source of revenues for protected areas,

Emphasize that at the same time, wherever and whenever tourism in natural and rural areas is not properly planned, developed and managed, it contributes to the deterioration of natural landscapes, threats to wildlife and biodiversity, marine and coastal pollution, poor water quality, poverty, displacement of indigenous and local communities, and the erosion of cultural traditions,

Acknowledge that ecotourism development must consider and respect the land and property rights, and, where recognized, the right to self-determination and cultural sovereignty of indigenous and local communities, including their protected, sensitive and sacred sites as well as their traditional knowledge,

Stress that to achieve equitable social, economic and environmental benefits from ecotourism and other forms of tourism in natural areas, and to minimize or avoid potential negative impacts, participative planning mechanisms are needed that allow local and indigenous communities, in a transparent way, to define and regulate the use of their areas at the local level, including the right to opt out of tourism development,

Understand that small and micro businesses seeking to meet social and environmental objectives are key partners in ecotourism and are often operating in a development climate that does not provide suitable financial and marketing support for ecotourism,

Recognize that to improve the chances of survival of small-, medium-, and micro enterprises further understanding of the ecotourism market will be required through market research, specialized credit instruments for tourism businesses, grants for external costs, incentives for the use of sustainable energy and innovative technical solutions, and an emphasis on developing skills not only in business but within government and those seeking to support business solutions,

Accept the need to avoid discrimination between people, whether by race, gender or other personal circumstances, with respect to their involvement in ecotourism as consumers or suppliers,

Recognize that visitors have a responsibility to the sustainability of the destination and the global environment through their travel choice, behaviour and activities, and that therefore it is important to communicate to them the qualities and sensitivities of destinations,

In light of the above, the participants to the World Ecotourism Summit, having met in Québec City, from 19 to 22 May 2002, produced a series of recommendations, which they propose to governments, the private sector, non-governmental organizations, community-based associations, academic and research institutions, inter-governmental organizations, international financial institutions, development assistance agencies, and indigenous and local communities, as follows:

A. To national, regional and local governments

1. *formulate* national, regional and local ecotourism policies and development strategies that are consistent with the overall objectives of sustainable development, and to do so through a wide consultation process with those who are likely to become involved in, affect, or be affected by ecotourism activities;
2. *guarantee -in conjunction* with local and indigenous communities, the private sector, NGOs and all ecotourism stakeholders- the protection of nature, local and indigenous cultures and specially traditional knowledge, genetic resources, rights to land and property, as well as rights to water;
3. *ensure* the involvement, appropriate participation and necessary coordination of all the relevant public institutions at the national, provincial and local level, (including the establishment of inter-ministerial working groups as appropriate) at different stages in the ecotourism process, while at the same time opening and facilitating the participation of other stakeholders in ecotourism-related decisions. Furthermore, adequate budgetary mechanisms and appropriate legislative frameworks need to be set up to allow implementation of the objectives and goals set up by these multistakeholder bodies;
4. *include* in the above framework the necessary regulatory and monitoring mechanisms at the national, regional and local levels, including objective sustainability indicators jointly agreed with all stakeholders and environmental impact assessment studies to be used as feedback mechanism. Results of monitoring should be made available to the general public;
5. *develop* regulatory mechanisms for internalization of environmental costs in all aspects of the tourism product, including international transport;
6. *develop* the local and municipal capacity to implement growth management tools such as zoning, and participatory land-use planning not only in protected areas but in buffer zones and other ecotourism development zones;

7. *use* internationally approved and reviewed guidelines to develop certification schemes, ecolabels and other voluntary initiatives geared towards sustainability in ecotourism, encouraging private operators to join such schemes and promoting their recognition by consumers. However, certification systems should reflect regional and local criteria. Build capacity and provide financial support to make these schemes accessible to small and medium enterprises (SMEs). In addition, monitoring and a regulatory framework are necessary to support effective implementation of these schemes;
8. *ensure* the provision of technical, financial and human resources development support to micro, small and medium-sized firms, which are the core of ecotourism, with a view to enable them to start, grow and develop their businesses in a sustainable manner;
9. *define* appropriate policies, management plans, and interpretation programmes for visitors, and earmark adequate sources of funding for natural areas to manage visitor numbers, protect vulnerable ecosystems, and the sustainable use of sensitive habitats. Such plans should include clear norms, direct and indirect management strategies, and regulations with the funds to ensure monitoring of social and environmental impacts for all ecotourism businesses operating in the area, as well as for tourists wishing to visit them;
10. *include* micro, small and medium-sized ecotourism companies, as well as community-based and NGO-based ecotourism operations in the overall promotional strategies and programmes carried out by the National Tourism Administration, both in the international and domestic markets;
11. *encourage* and *support* the creation of regional networks and cooperation for promotion and marketing of ecotourism products at the international and national levels;
12. *provide* incentives to tourism operators and other service providers (such as marketing and promotion advantages) for them to adopt ecotourism principles and make their operations more environmentally, socially and culturally responsible;
13. *ensure* that basic environmental and health standards are identified and met by all ecotourism development even in the most rural areas. This should include aspects such as site selection, planning, design, the treatment of solid waste, sewage, and the protection of watersheds, etc., and ensure also that ecotourism development strategies are not undertaken by governments without investment in sustainable infrastructure and the reinforcement of local/municipal capabilities to regulate and monitor such aspects;
14. *institute* baseline environmental impact assessment (EIA) studies and surveys that record the social environmental state of destinations, with special attention to endangered species, and invest, or support institutions that invest in research programmes on ecotourism and sustainable tourism;
15. *support* the further implementation of the international principles, guidelines and codes of ethics for sustainable tourism (e.g. such as those proposed by UNEP, WTO, the Convention on Biological Diversity, the UN Commission on Sustainable

Development and the International Labor Organization) for the enhancement of international and national legal frameworks, policies and master plans to implement the concept of sustainable development into tourism;

16. *consider* as one option the reallocation of tenure and management of public lands, from extractive or intensive productive sectors to tourism combined with conservation, wherever this is likely to improve the net social, economic and environmental benefit for the community concerned;
17. *promote and develop* educational programmes addressed to children and young people to enhance awareness about nature conservation and sustainable use, local and indigenous cultures and their relationship with ecotourism;
18. *promote* collaboration between outbound tour operators and incoming operators and other service providers and NGOs at the destination to further educate tourists and influence their behaviour at destinations, especially those in developing countries;
19. *incorporate* sustainable transportation principles in the planning and design of access and transportation systems, and encourage tour operators and the travelling public to make soft mobility choices.

B. To the private sector

20. *bear* in mind that for ecotourism businesses to be sustainable, they need to be profitable for all stakeholders involved, including the projects' owners, investors, managers and employees, as well as the communities and the conservation organizations of natural areas where it takes place;
21. *conceive, develop and conduct* their businesses minimizing negative effects on, and positively contributing to, the conservation of sensitive ecosystems and the environment in general, and directly benefiting and including local and indigenous communities;
22. *ensure that the design, planning, development and operation* of ecotourism facilities incorporates sustainability principles, such as sensitive site design and community sense of place, as well as conservation of water, energy and materials, and accessibility to all categories of population without discrimination;
23. *adopt* as appropriate a reliable certification or other systems of voluntary regulation, such as ecolabels, in order to demonstrate to their potential clients their adherence to sustainability principles and the soundness of the products and services they offer;
24. *cooperate* with governmental and non-governmental organizations in charge of protected natural areas and conservation of biodiversity, ensuring that ecotourism operations are practised according to the management plans and other regulations prevailing in those areas, so as to minimize any negative impacts upon them while enhancing the quality of the tourism experience and contribute financially to the conservation of natural resources;
25. *make increasing use* of local materials and products, as well as local logistical and human resource inputs in their operations, in order to maintain the overall authenticity of the ecotourism product and increase the proportion of financial and other benefits

that remain at the destination. To achieve this, private operators should invest in the training of the local workforce;

26. *ensure* that the supply chain used in building up an ecotourism operation is thoroughly sustainable and consistent with the level of sustainability aimed at in the final product or service to be offered to the customer;
27. *work actively* with indigenous leadership and local communities to ensure that indigenous cultures and communities are depicted accurately and with respect, and that their staff and guests are well and accurately informed regarding local and indigenous sites, customs and history;
28. *promote* among their clients an ethical and environmentally conscious behaviour vis-à-vis the ecotourism destinations visited, such as by environmental education or by encouraging voluntary contributions to support local community or conservation initiatives;
29. *generate* awareness among all management and staff of local, national and global environmental and cultural issues through ongoing environmental education, and support the contribution that they and their families can make to conservation, community economic development and poverty alleviation;
30. *diversify* their offer by developing a wide range of tourist activities at a given destination and by extending their operations to different destinations in order to spread the potential benefits of ecotourism and to avoid overcrowding some selected ecotourism sites, thus threatening their long-term sustainability. In this regard, private operators are urged to respect, and contribute to, established visitor impact management systems of ecotourism destinations;
31. *create and develop* funding mechanisms for the operation of business associations or cooperatives that can assist with ecotourism training, marketing, product development, research and financing;
32. *ensure* an equitable distribution of financial benefits from ecotourism revenues between international, outbound and incoming tour operators, local service providers and local communities through appropriate instruments and strategic alliances;
33. *formulate and implement* company policies for sustainability with a view to applying them in each part of their operations.

C. To non-governmental organizations, community-based associations, academic and research institutions.

34. *provide* technical, financial, educational, capacity building and other support to ecotourism destinations, host community organizations, small businesses and the corresponding local authorities in order to ensure that appropriate policies, development and management guidelines, and monitoring mechanisms are being applied towards sustainability;
35. *monitor and conduct* research on the actual impacts of ecotourism activities upon ecosystems, biodiversity, local and indigenous cultures and the socio-economic fabric of the ecotourism destinations;

36. *cooperate* with public and private organizations ensuring that the data and information generated through research is channeled to support decision-making processes in ecotourism development and management;
37. *cooperate* with research institutions to develop the most adequate and practical solutions to ecotourism development issues.

D. To inter-governmental organizations, international financial institutions and development assistance agencies

38. *develop and assist* in the implementation of national and local policy and planning guidelines and evaluation frameworks for ecotourism and its relationships with biodiversity conservation, socio-economic development, respect of human rights, poverty alleviation, nature conservation and other objectives of sustainable development, and to intensify the transfer of such know-how to all countries. Special attention should be paid to countries in a developing stage or least developed status, to small island developing States and to countries with mountain areas, considering that 2002 is also designated as the International Year of Mountains by the UN;
39. *build capacity* for regional, national and local organizations for the formulation and application of ecotourism policies and plans, based on international guidelines;
40. *develop or adopt*, as appropriate, international standards and financial mechanisms for ecotourism certification systems that take into account the needs of small and medium enterprises and facilitates their access to those procedures, and support their implementation;
41. *incorporate* multistakeholder dialogue processes into policies, guidelines and projects at the global, regional and national levels for the exchange of experiences between countries and sectors involved in ecotourism;
42. *strengthen* efforts in identifying the factors that determine the success or failure of ecotourism ventures throughout the world, in order to transfer such experiences and best practices to other nations, by means of publications, field missions, training seminars and technical assistance projects; UNEP, WTO and other international organizations should continue and expand the international dialogue after the Summit on sustainable tourism and ecotourism issues, for example by conducting periodical reviews of ecotourism development through international and regional forums;
43. *adapt* as necessary their financial facilities and lending conditions and procedures to suit the needs of micro-, small- and medium-sized ecotourism firms that are the core of this industry, as a condition to ensure its long term economic sustainability;
44. *develop* the internal human resource capacity to support sustainable tourism and ecotourism as a development sub-sector in itself and to ensure that internal expertise, research, and documentation are in place to oversee the use of ecotourism as a sustainable development tool;
45. *develop* financial mechanisms for training and capacity building, that takes into account the time and resources required to successfully enable local communities and indigenous peoples to participate equitably in ecotourism development.

E. To local and indigenous communities

In addition to all the references to local and indigenous communities made in the preceding paragraphs of this Declaration, (in particular para. 5, 8, 9 and 10 on page 2; para. 1 on page 3; in A 2 and 17; B 21 and 27; C 35; D 45) participants addressed the following recommendations to the local and indigenous communities themselves:

46. As part of a community vision for development, that may include ecotourism, *define and implement* a strategy for improving collective benefits for the community through ecotourism development including human, physical, financial, and social capital development, and improved access to technical information;
47. *strengthen, nurture and encourage* the community's ability to maintain and use traditional skills, particularly home-based arts and crafts, agricultural produce, traditional housing and landscaping that use local natural resources in a sustainable manner.

F. To the World Summit on Sustainable Development (WSSD)

48. *recognize* the need to apply the principles of sustainable development to tourism, and the exemplary role of ecotourism in generating economic, social and environmental benefits;
49. *integrate* the role of tourism, including ecotourism, in the outcomes expected at WSSD.

Québec City, Canada, 22 May 2002
Source: www.world-tourism.org/sustainable/IYE/quebec/anglais/declaration.html

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6. GEOTOURISM CHARTER - 2002

(www.nationalgeographic.com/ travel/sustainable/pdfs/geoprinciples.pdf, www.nationalgeographic.com/travel/sustainable/pdf/geotourism_charter_template.pdf)

WHEREAS the geotourism approach is all-inclusive, focusing not only on the environment, but also on the diversity of the cultural, historic, and scenic assets of _____,
WHEREAS the geotourism approach encourages citizens and visitors to get involved rather than remain tourism spectators, and
WHEREAS the geotourism approach helps build a sense of national identity and pride, stressing what is authentic and unique to_____,
THE UNDERSIGNED parties to this Agreement of Intent commit to support these geotourism principles, to sustain and enhance the geographical character of _____ — its environment, culture, aesthetics, heritage, and the well-being of its residents:

1. The geotourism approach is all-inclusive, focusing not only on the environment, but also on the diversity of the cultural, historic, and scenic assets.
2. The geotourism approach encourages citizens and visitors to get involved rather than remain tourism spectators.
3. The geotourism approach helps build a sense of national identity and pride, stressing what is authentic and unique.
4. Support the geotourism principles, sustain and enhance the geographical character of its environment, culture, aesthetics, heritage, and the well-being of its residents by the following actions:
    - **Integrity of place:** Enhance geographical character by developing and improving it in ways distinctive to the locale, reflective of its natural and cultural heritage, so as to encourage market differentiation and cultural pride.
    - **International codes:** Adhere to the principles embodied in the World Tourism Organization's Global Code of Ethics for Tourism and the Principles of the Cultural *Tourism Charter established by the International Council on Monuments and Sites (ICOMOS).*
    - **Market selectivity:** Encourage growth in tourism market segments most likely to appreciate, respect, and disseminate information about the distinctive assets of the locale.
    - **Market diversity:** Encourage a full range of appropriate food and lodging facilities, so as to appeal to the entire demographic spectrum of the geotourism market and so maximise economic resiliency over both the short and long term.
    - **Tourist satisfaction:** Ensure that satisfied, excited geotourists bring new vacation stories home and send friends off to experience the same thing, thus providing continuing demand for the destination.
    - **Community involvement:** Base tourism on community resources to the extent possible, encouraging local small businesses and civic groups to build partnerships to promote and provide a distinctive, honest visitor experience and market their locales effectively.
    - **Help businesses**: Develop approaches to tourism that build on the area's nature, history and culture, including food and drink, artisanry, performance arts.
    - **Community benefit:** Encourage micro-to medium-size enterprises and tourism business strategies that emphasize economic and social benefits to involved communities, especially poverty alleviation, with clear communication of the destination stewardship policies required to maintain those benefits.
    - **Protection and enhancement of destination appeal:** Encourage businesses to sustain natural habitats, heritage sites, aesthetic appeal, and local culture. Prevent degradation by keeping volumes of tourists within maximum acceptable limits. Seek business models that can operate profitably within those limits. Use persuasion, incentives, and legal enforcement as needed.
    - **Land use:** Anticipate development pressures and apply techniques to prevent undesired overdevelopment and degradation. Contain resort and vacation-home

sprawl, especially on coasts and islands, so as to retain a diversity of natural and scenic environments and ensure continued resident access to waterfronts. Encourage major self-contained tourism attractions, such as large-scale theme parks and convention centers unrelated to character of place, to be sited in needier locations with no significant ecological, scenic, or cultural assets.

- **Conservation of resources:** Encourage businesses to minimize water pollution, solid waste, energy consumption, water usage, landscaping chemicals, and overly bright nighttime lighting. Advertise these measures in a way that attracts the large, environmentally sympathetic tourist market.
- **Planning:** Recognize and respect immediate economic needs without sacrificing long- term character and the geotourism potential of the destination. Where tourism attracts in- migration of workers, develop new communities that themselves constitute a destination enhancement. Strive to diversify the economy and limit population influx to sustainable levels. Adopt public strategies for mitigating practices that are incompatible with geotourism and damaging to the image of the destination.
- **Interactive interpretation:** Engage both visitors and hosts in learning about the place. Encourage residents to show off the natural and cultural heritage of their communities, so that tourists gain a richer experience and residents develop pride in their locales.
- **Evaluation:** Establish an evaluation process to be conducted on a regular basis by an independent panel representing all stakeholder interests, and publicize evaluation results.

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7. FIFTH WORLD PARKS CONGRESS RESOLUTION 5.12: TOURISM. TOURISM AS A VEHICLE FOR CONSERVATION AND SUPPORT OF PROTECTED AREAS

(5th World Parks Congress Resolution 5.12: Tourism, as cited in McCool, Eagles, Bushell and McNeely: 332, www.cmsdata.iucn.org/downloads/world_parks_congress.pdf)

Therefore, PARTICIPANTS in the Stream on Building Broader Support for Protected Areas at the Vth World Parks Congress, in Durban, South Africa (8-17 September 2003):

1. RECOMMEND that the tourism sector, including appropriate institutions, associations, and operators, work together with protected area managers and communities to ensure that tourism associated with protected areas, in both developed and developing countries:
   a. Respects the primacy of the role of conservation for protected areas;
   b. Makes tangible and equitable financial contributions to conservation and to protected area management;

c. Ensures tourism contributes to local economic development and poverty reduction through:
    i. Support to local small and medium sized enterprise
    ii. Employment of local people;
    iii. Purchasing of local goods and services; and
    iv. Fair and equitable partnerships with local communities;
d. Uses relevant approaches that encourage appropriate behaviour by visitors (e.g, environmental education, interpretation, and marketing);
e. Uses ecologically and culturally appropriate technologies, infrastructure, facilities and materials in and or near protected areas;
f. Monitors, reports and mitigates negative impacts and enhances positive effects of tourism;
g. Communicates the benefits of protected areas and the imperative for conservation; and
h. Promotes the use of guidelines, codes of practice and certification programmes;

2. RECOMMEND that key decision-makers work with the conservation community, including the IUCN WCPA Task Force for Tourism and Protected Areas, to ensure that tourism:
    a. Supports the sustainable use of natural and cultural heritage;
    b. Supports local and indigenous community development and economic opportunities:
        i. Provides political and financial support for the establishment, extension, and effective management of protected areas;
        ii. Supports implementation of relevant international agreements, national legislation, and guidelines on protected areas;
        iii. Fosters respect and stewardship for natural and cultural heritage through visitation and education: and
        iv. Promotes the use of culturally appropriate participatory processes;

3. THEREFORE RECOMMEND to key international and national agencies, local authorities and the private sector to support research and development to:
a. Understand the links between tourism, conservation and community development;
b. Establish reliable data on protected area tourism;
c. Determine optimum types and levels of protected area visitation;
d. Promote appropriate monitoring and evaluation;
e. Promote effective management;
f. Encourage policy development on protected area tourism;
g. Provide appropriate tourism training for protected area personnel;
h. Provide effective interpretation and education;
i. Understand visitor experiences, behaviour and impact; and
j. Develop appropriate tools and techniques for sustainable finance of protected areas through tourism;

(5th World Parks Congress Resolution 5.12: Tourism, as cited in McCool, Eagles, Bushell and McNeely: 332)

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8. WASHINGTON DECLARATION ON TOURISM AS A SUSTAINABLE DEVELOPMENT STRATEGY - 2004

(www.rmportal.net/.../wto-tpf-declaration-final-2-efayos.pdf/attachment_download/file)

The first international forum focusing on tourism development and assistance met for the Tourism Policy Forum held in Washington DC from October 18-20, 2004, convened by the World Tourism Organization and The George Washington University, Chair of the WTO Education Council.

The assembly proposes the following declaration:
Whereas, the World Tourism Organization (WTO) has recently become the United Nations Specialized Agency for Tourism, vested with a central role in promoting the development of responsible, sustainable and universally accessible tourism;

Whereas, the purpose of the WTO Tourism Policy Forum (WTO.TPF) is to convene educators and knowledge management experts of the WTO Education Council and other informed professionals, together with representative government policy-makers and business leaders, to focus on critical policy issues facing global tourism and to offer recommendations for future directions;

Whereas, 200 delegates and 200 observers from 52 countries participated in global consensus building activities focused on development assistance issues and strategic recommendations;

Taking into consideration that tourism is the largest industry in the world today with significant economic, environmental and socio-cultural impacts, requiring sustainable, knowledge-based policies;

Taking into consideration that tourism is an increasingly important development strategy to positively address poverty reduction, economic growth, biodiversity conservation, and socio-cultural integrity generally, as well as the UN Millennium Development Goals (MDGs) specifically;

Recognizing that tourism can contribute to equitable redistribution of income and liberalization with a human face;

Recognizing also the active role of other United Nations agencies and their assistance to developing countries.

Acknowledging that sustainable tourism development necessitates private and public sector, donor agency and stakeholder cooperation and input;
Acknowledging that the measurement and monitoring of tourism's impact with rigorousanalytical tools and relevant indicators is crucial;

Acknowledging the importance of the WTO ST-EP program to bring sustainable tourism development into the service of poverty alleviation.

We agree to the following:

To build partnerships of equal opportunity and fair representation within destinations, and to strengthen their leadership;
To engender local community awareness of the tourism planning process and its benefits;

To foster buy-in for the concept of sustainability by all sectors including the sharing of guidelines and good practices;

To delegate the authority for decision-making to the appropriate community level and build capacity there, and empower local development authorities;

To encourage and facilitate brand awareness and a collective image for a destination community;

To recognize the uniqueness of the business perspective as different from that of the public sector and to communicate effectively in business language;

To develop cross-sectoral demonstration projects that illustrate linkages, inter-relationships and working partnerships;

To call upon governments, bi-lateral and multi-lateral institutions to facilitate access to capital of all kinds, and to provide guidance, training and support on how to access such funding;

To develop land-use policies through a participatory process, and to provide policy incentives for private land owners;

To enhance communication and coordination between agencies including the use of advanced information communication technologies;

To develop educational programs directed to tourism policy stakeholders including local communities to promote the understanding of cultural/heritage resources, and the need for preservation and social responsibilities;

To encourage the development of a regional network of researchers, practitioners and donor agencies for sustainable tourism development.

Therefore, be it resolved that:

1. These Forum findings and recommendations will be reported to the relevant bodies and WTO organs for consideration of further action.
2. The Forum delegates call upon aid donors and recipients, to join together with government, private sector, universities and civil society stakeholders to form a global network to enhance tourism's potential to contribute positively to the fulfillment of Millennium Development Goals.

Source:
(www.rmportal.net/.../wto-tpf-declaration-final-2-efayos.pdf/attachment_download/file)

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9. POSITION PAPER GEOPARK AND GEOTOURISM RESEARCH FINAL DOCUMENT OF THE INTERNATIONAL WORKSHOP ON GEOPARK AND GEOTOURISM RESEARCH HOSTED BY THE INSTITUTE FOR REGIONAL SCIENCE/UNIVERSITY OF KARLSRUHE - 2006

(VOGT, J. und MEGERLE, A. (Hrsg). Frickenhausen und Karlsruhe, RWFV Regionalwissenschaftlicher Fachverlag. Geopark and Geotourismusforschung – Ergebnisse des Internationales Workshop in Karlsruhe 2006:7-8.)

I Preamble/Objectives

This paper is geared towards all protagonists involved in geopark and geotourism research.

Our aims are ...

- ... to sharpen and further develop awareness of the importance of geoparks and geotourism. They are innovating factors
- ... for earth sciences and numerous integrative environmental protection, especially for the integrative sustainable development of appropriate regions
- ... to contribute to supporting the continuation of these innovations by appropriate conditions and measures in science and politics
- ... to lead to a reduction of constraints and risks to the achievement of these aims and a strengthening of supporting factors.

Geoparks play an important role in imparting information and serve as contact spaces of science and public that are gaining importance in view of the increasing pressure of legitimation by society.

We see a geat chance in the development of geoparks and geotourism concepts to create new and integrative instruments for development including usage and protection concepts for suitable regions.

We presume that the present situation is marked by insecurities by planning and insufficient embedding of geopark and geotourism concepts into structures and operating procedures of the administration which may lead to endangering the idea of geoparks and geotourism.

II General aspects

1. Geoparks and geotourism are in need of developing a strategy exceeding all administrative levels, focussing on international and national levels, that aims at geoparks and geotourism taking root in the respective national system of protected areas and labelling as well as in the concepts of tourism. This strategy must be embedded in a transparent and participative process including all protagonists. Important parts of such a strategy are the definition of plausible structures and processes (e.g. for labelling), financial security of all protagonists, as well as accompanying scientific research in agreement with the principles of sustainable development.
2. Even though geoparks are not a category of protected areas, they require clearer administrative responsibilities and competences of can create the legal security necessary and lead to the fact that that geoparks were created "bottom-up" will still be efficiently and effectively supported "top-down.
3. The know-how of transfer of scientists and specialists in the field of geoparks and geotourism has to be organised and supported in transdisciplinary networks on international level. We see the need of establishing one or more scientific documentation centres for collecting, archiving and documenting of scientific geopark and geotourism know-how.

III Central areas of research

Many recent upcoming questions concerning geopark and geotourism can only be answered on the basis of scientific research. Due to the high complexity and high level of innovation a specific field of research is called for. Geopark and geotourism reserch are to be laid out in an international, inter- and multidisciplinary way: the the competencies of earth, social, administrative, political and regional science have to be included. Examples of such reserarch areas of utmost importance are:

- What are the aims, tasks and functions of geoparks?

- Based on the broad spectrum in content and organisation, a typology of geoparks should be developed in order to gain insights in strengths and weaknesses of different types of geoparks
- What are the relations of geoparks to other spatial labellings (nature parks, regional parks, national parks etc)?
- How should geoparks be delimitated and do they need minimal spatial distances to each other? The scientific development of criteria for the delimitation of geoparks as well as their application are necessary.
- Which certification systems are needed and how should they be implemented? Do alternatives exist?
- How are geoparks and geotourism perceived by different groups?
- Which ways of participation in geoparks make sense and are successful at the same time? How are different groups and protagonists included? What is crucial for the involvement of citizens?
- In which ways do geoparks influence the acceptance of activities of different stakeholders and users of space, e.g. mining of resources?
- How can professional competences in these areas of research be linked in a framework of education, pedagogical communication and administration?
- How can geopedagogical instruments help to add to the effect geoparks have on the transfer of science into the public and to the sensitivity of the general public for the importance of nature and environment?

Karlsruhe, 24th June 2006

(The translation was done by the congress organisers.)

Source: VOGT, J. und MEGERLE, A. (Hrsg). Frickenhausen und Karlsruhe, RWFV Regionalwissenschaftlicher Fachverlag. Geopark and Geotourismusforschung – Ergebnisse des Internationales Workshop in Karlsruhe 2006: 7-8.

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10. GUIDELINES AND CRITERIA FOR NATIONAL GEOPARKS SEEKING UNESCO'S ASSISTANCE TO JOIN THE GLOBAL GEOPARKS NETWORK

(January 2007)

(http://www.unesco.org/science/earth/geoparks/2007guidelinesJanuary.pdf).

GEOPARKS – ***Promoting Earth Heritage, Sustaining Local Communities***

Global Network of National Geoparks - ***a landscape approach for geological heritage conservation, research and sustainable development***

Introduction

Geology and landscape have profoundly influenced society, civilization, and the cultural diversity of our planet but until recently, no international recognition of geological heritage sites of national or regional importance, and no international convention specifically on geological heritage have existed. The initiative of UNESCO to support Geoparks responds to the strong need expressed by numerous countries for an international framework to enhance the value of the Earth's heritage, it's landscapes and geological formations, which are key witnesses to the history of life.

Pursuant the decision of its Executive Board in June 2001 (161 EX/Decisions, 3.3.1) UNESCO has been invited *"to support ad hoc efforts with Member States as appropriate"* to promote territories or natural parks having special geological features. National Geopark initiatives, which seek UNESCO's assistance should integrate the preservation of significant examples of geological heritage in a strategy for regional sustainable socio-economic and cultural development, safeguarding the environment.

The present document provides guidelines for developing National Geoparks under the assistance of UNESCO for the inclusion in a Global Network. The applicant is asked to respect the terms of the present guidelines. An independent expert group will refer to these guidelines when assessing proposals for the Global Network.

The protection and sustainable development of geological heritage and geodiversity through Geoparks initiatives, contributes to the objectives of Agenda 21, the Agenda of Science for Environment and Development into the twenty-first century adopted by the United Nations Conference on Environment and Development (UNCED, Rio de Janeiro, 1992) and which was reconfirmed by the World Summit on Sustainable Development 2002 in Johannesburg. The Geoparks initiative adds a new dimension to the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage by highlighting the potential for interaction between socio-economic and cultural development and conservation of the natural environment.

The Global Network of National Geoparks operates in close synergy with UNESCO's World Heritage Centre, the Man and the Biosphere (MAB) World Network of Biosphere Reserves, national and international undertakings and non-governmental organizations active in geological heritage conservation. For national Geoparks in Europe, UNESCO has established a privileged partnership with the *European Geoparks Network (EGN)* since 2001. As a result, the EGN acts as the Global Geoparks Network for Europe. UNESCO recommends the creation of similar regional Networks, reflecting local conditions, elsewhere in the world. Networking among Geoparks is an important component of the Global Network of National

Geoparks. UNESCO encourages any form of cooperation especially in the fields of education, management, tourism, sustainable development, regional planning among Network members.

Part I - Criteria

1. Size and setting

- A Geopark seeking to become member of the Global Network of National Geoparks is an area with well-defined limits and a large enough surface area for it to serve local economic and cultural development (mainly through tourism). It comprises a number of internationally important geological heritage sites on any scale, or a mosaic of geological entities of special scientific importance, rarity or beauty. These features are representative of a region's geological history and the events and processes that formed it.
- A 'Geopark' is a geographical area where geological heritage sites are part of a holistic concept of protection, education and sustainable development. The Geopark should take into account the whole geographical setting of the region, and shall not solely include sites of geological significance. Non-geological themes are an integrated part of it, especially when their relation to landscape and geology can be demonstrated to the visitors. For this reason, it is necessary to include also sites of ecological, archaeological, historical or cultural value. In many societies, natural, cultural and social history are inextricably linked and thus cannot be separated.
- If the area of a Geopark is identical to or partly or wholly overlaps with an area already inscribed, for example, on the World Heritage List or registered as a Biosphere Reserve of the Man and the Biosphere Programme of UNESCO, it is necessary to obtain prior clearance from the appropriate bodies of the said initiatives before submitting the application.

2. Management and local involvement

- Prerequisite to any successful Geopark proposal is the establishment of a management body and plan. The presence of impressive and internationally significant geological outcrops alone is not sufficient. The geological features inside the Geopark area must be accessible to visitors, are linked to one another and safeguarded in a formally managed park-type situation. The Geopark is run by a designated local authority or several authorities having an adequate management infrastructure, qualified personal and adequate financial support.
- The establishment of a Geopark is a bottom-up process. It should be based on a strong multi task-force concept and political will with long-term financial support, and professional management structures, which adopts its own territorial policy for sustainable regional socio-economic and cultural development. Success can only be

achieved through strong local involvement. The initiative to create a Geopark must therefore come from local communities/authorities with a strong commitment to developing and implementing a management plan that meets the economic needs of the local population whilst protecting the landscape in which they live. Nevertheless, it needs to be endorsed at national level by the National Commission to UNESCO.

- A Geopark shall provide organizational arrangements to involve public authorities, local communities, private interests, and both research and educational bodies in the design and running of the park and its regional economic and cultural development plan and activities. This co-operation shall stimulate discussion and encourage partnerships between the different groups having a vested interest in the area; it shall motivate and mobilise local authorities and the local population.
- The identity of a Geopark must be clearly visible for visitors. This is achieved through a strong public relations concept including common branding/labelling of the sites belonging the the Geopark, the publications and all activities taking place there.
- Sustainable tourism and other economic activities within a Geopark can only be successful if carried out in cooperation with local communities. Tourism activities have to be conceived specially to match local conditions and the natural and cultural character of a territory and must fully respect the traditions of the local populace. To respect, reinforce and protect local cultural values, is a crucial part of the sustainable development effort. In many regions and countries it is also necessary to involve the indigenous population in the establishment of a Geopark.
- It is strongly recommended to seek advice from the Geoparks Secretariat and its independent bureau during the preparatory phase of application. Furthermore, the applicant should seek co-operation with respective Geological Surveys, local public and tourism bodies, local communities, universities and research bodies, and private interest groups and to broaden the composition of the start-up team in charge of the Geopark project. These groups should be representative of the scientific, conservation and socio-economic communities of the area. A wide local consultation process must involve the local population to facilitate local acceptance for the planned Geopark and to develop a strong concept for their Geopark application dossier.

3. Economic development

Sustainable development was defined by the World Commission on Environment and Development in *Our Common Future* (1987) as 'development, which meets the needs of the present generation without compromising the ability of future generations to meet their own needs.'

- One of the main strategic objectives of a Geopark is to stimulate economic activity and sustainable development. A Geopark seeking UNESCO's assistance serves to foster socio-economic development that is culturally and environmentally sustainable. This has a direct impact on the area involved by improving human living conditions

and the rural environment. It strengthens identification of the population with their area and triggering cultural renaissance, which in turn aids direct protection of geological heritage.

- Often, aspects of a region's cultural heritage are linked to the geological heritage. Respectful of the environment, the establishment of a Geopark shall stimulate, for example, the creation of innovative local enterprises, small business, cottage industries, initiative high quality training courses and new jobs by generating new sources of revenue (e.g. geo-tourism, geo-products) while protecting the geo-resources of the Geopark (e.g. encouraging casting instead of sale of fossils). This provides supplementary income for the local population and shall attract private capital. 'Geo-tourism' is an economic, success-oriented and fast-moving discipline, a new tourist business sector involving strong multidisciplinary cooperation.

4. Education

- A Geopark must provide and organize support, tools and activities to communicate geoscientific knowledge and environmental concepts to the public (e.g. through museums, interpretive and educational centres, trails, guided tours, popular literature and maps, modern communication media). It also allows and fosters scientific research and cooperation with universities, and between geoscientists and the local populace.
- The success of Geopark educational activities depends not only on the content of tourism programmes, competent staff and logistic support for the visitors, but also on the personal contact with the local population, media representatives and decision-makers. The aspects of wide community participation and capacity building on the local level (e.g. training of visitor guides) helps to develop a wide range of acceptance of the geopark philosophy (and transfer of knowledge and information) in the population. It cannot be repeated often enough that local people are of primordial importance for the successful establishment and maintenance of a Geopark.
- Among the instruments available for the transfer of information are events such as excursions for school classes and teachers, seminars, and scientific lectures for the environmentally and culturally interested public and for residents who enjoy introducing their landscape to visitors. One of the main issues is to link geo-education with the local context, thus local students must learn the importance of their geological heritage. Creating geo-curricula for primary and secondary schools, using the local information about geology, geomorphology and physical geography will help to preserve the Geopark while at the same time reinforcing local awareness, pride and self-identity. Geoparks may be great educational tools at local and national levels.
- Within the educational concept, museums, 'discovery centres', interpretive centres and other innovative new tools must be developed to promote the principle of geological heritage conservation and the necessity of its safeguarding and archiving. The

museums and centres also serve for developing different educational programmes for visitors and local actors.

- All educational activities should reflect the ethical considerations around holistic environmental protection.

5. Protection and conservation

- A Geopark is not specifically a new category of protected area or landscape and can be quite different from what is mostly an entirely protected and regulated National Park or Nature Park. The responsible Geopark authority ensures the protection of the geological heritage of the Geopark in accordance with local traditions and legislative obligations. It is the government of the country where the Geopark is situated which decides about the level and measures of protection of certain sites or geological outcrops.
- In accordance with national legislation or regulations, a Geopark shall contribute to the conservation of significant geological features including:
  - representative rocks
  - mineral resources
  - minerals
  - fossils
  - landforms and landscapes

which provide information on various geoscientific disciplines such as:

- solid earth sciences
- economic geology and mining
- engineering geology
- geomorphology
- glacial geology
- physical geography
- hydrology
- mineralogy
- palaeontology
- petrology
- sedimentology
- soil science
- speleology
- stratigraphy
- structural geology
- volcanology

A Geopark explores and demonstrates methods and best practise of conserving those examples of geological heritage.

- The management authority of the Geopark ensures adequate protection measures, in consultation with relevant statutory bodies, to guarantee effective conservation and provide means for physical maintenance, as appropriate. Those sites remain under the sole jurisdiction of the country in which the Geopark is situated. It is the country's responsibility to decide how to protect the particular sites or areas, in conformity with national legislation or regulations.
- A Geopark must respect local and national laws relating to the protection of geological heritage. Its managing body should strongly discourage the selling of all elements of ornamental geological heritage, which could not be regarded as sustainable but it should permit, in certain circumstances, the limited (sustainable) collecting of geological samples for scientific and educational purposes from naturally renewable sites. It can be demonstrated that a sustainable approach in this question leads to higher economic benefit than a shortsighted selling of Earth heritage, minerals and fossils.

6. The Global Network

- The Global Network of National Geoparks provides a platform of cooperation and exchange between experts and practitioners in geological heritage matters. Under the umbrella of UNESCO and through cooperation with the global network partners, important local, national geological sites gain worldwide recognition and profit through the exchange of knowledge and expertise, experience and staff between other Geoparks. This international partnership developed by UNESCO, brings the advantage to be a member of and profit from worldwide network, as compared to a local isolated initiative. It permits to benefit from the experience of other members of the network.
- The network comprises all regions of the world and brings together groups that share common values, interests, or backgrounds following a specific methodology and management. It further serves to develop models of best practice and set quality-standards for territories that integrate the preservation of geological heritage in a strategy for regional sustainable economic development. The establishment of a Geopark brings sustainability and real economic benefit to the local populations, usually through the development of sustainable tourism and other economic and cultural activities, in developing the sustainable development component parallel to it's conservation efforts.

Geoparks that are part of the Network:

1) preserve geological heritage for present and future generations
2) educate and teach the broad public about issues in geological sciences and their relation with environmental matters
3) ensure sustainable socio-economic and cultural development
4) foster multi-cultural bridges for heritage and conservation and the maintenance of

geological and cultural diversity, using participatory schemes and co-partnership
5) stimulate research when appropriate
6) contribute actively to the life of the network through joint collaborative initiatives (e.g. communication, publications, exchange of information, twinning, participation in meetings, common projects)
7) contribute articles to the GGN Newsletters, books and other publications

- UNESCO supports the development of this initiative, among others, in order to put the geosciences back on the agenda of politicians and decision-markers of the governments and local actors, as well as on the 'radar screen' of private enterprises. An important number of activities within Geoparks are being developed worldwide to increase partnership with the private sector, e.g. the tourism industry. The private sector often requests an international cooperative framework that UNESCO can offer. UNESCO's umbrella will definitely raise the interest of government sectors in this effort, as the Organization has a strong awareness-raising potential that will be used to its maximum extent informing its Ambassadors of the different Member States. This in itself will lead to a much better understanding and support for local initiatives that want to join the UNESCO Network.
- The inclusion into the Global Network of National Geoparks is a sign of recognition of excellence in relation with the present guidelines and in no ways implies any legal or financial responsibilities on the part of UNESCO. This relates also to the use of UNESCO's name and logo, which needs a special authorization respecting the regulatory framework of sponsorship of the Organization. For approved network members, a special logo was created for the Global Network. Please note that the use of this logo and the mentioning of membership in the Global Network can be used only after the successful evaluation of the application and upon receipt of the official letter of approval from the Global Geoparks Network Secretariat. Further, the use of this common logo linked to the identity of the Global Network Members is strongly recommended and is essential to create a common image for all Geoparks throughout the world.
- Should a member of the network wish to use UNESCO's logo ("temple logo")and name for a specific event or activity, it can obtain patronage through the National Commissions for UNESCO or by special permission of the Director-General, which must be expressly authorized in advance and in writing. It is the responsibility of the managing body of the Geopark to avoid any misunderstandings with anyone in this regard. (Directives concerning the use of the name, acronym, logo and internet domain names of UNESCO can be obtained through the Geoparks Secretariat, address see below.)

Part II - Application procedure - a step by step procedure how to become a network member

In order to guarantee a balanced geographical representation of countries the number of

active Geopark applications is restricted to two per country. Three Geopark applications can be permitted for countries, which apply for the first time and are not yet participating in the Network.

1. Submission of application dossier

- Geoparks seeking UNESCO's assistance are invited to contact the Geoparks Secretariat at UNESCO, prior to the submission of any application dossier.

Geoparks Secretariat
Global Earth Observation Section
Division of Ecological and Earth Sciences
UNESCO
1, rue Miollis
75732 Paris Cedex 15
France

Phone: + 33 (0) 1 45 68 41 18
Fax: + 33 (0) 1 45 68 58 22
e-mail: m.patzak@unesco.org
www.unesco.org/science/earth

- The Geoparks Secretariat at UNESCO shall verify the contents of the application dossier and supporting materials and, in the case of incomplete documentation, request complementary information from the applicant. Applications can be submitted any time of the year and will be verified by a field evaluation mission, undertaken by independent Geoparks experts who which will issue a recommendation regarding the membership of the proposed Geopark. Prior to the mission, the experts will contact the applying Geopark and agree on a mission's programme and itinerary. Applications and the findings of the expert mission will be assessed by an independent Geoparks Bureau who will at least once per year. The whole assessment process needs at least a 6-month period. Membership to the Global Network of National Geoparks will be given upon a positive assessment. UNESCO shall notify the applicant with an official letter and certificate, and the National Commission for UNESCO in the country concerned of the decision taken. Travel, accommodation and local transportation costs of expert(s) in charge of advisory missions and on-the-spot evaluation should normally be borne by the country where the Geopark is located or any other party or entity concerned with the application.
- If in country a "National Network for Geoparks" exists, then the applicant must first become a member of the national network before submitting its dossier for membership to UNESCO, which must be certified.

- As part of the application preparation any potential new member may wish to invite an advisor from the network to their area. The costs of such a visit should be borne by the inviting territory.
- The application should be written in English or French and submitted in 3 printed copies and 3 CD-ROMs. The text part should not exceed 30 pages. It should be duly signed by the managing and governmental entities in charge of the running and developing of the Geopark, and be endorsed by the National Commission for UNESCO in the Member State concerned.
- The application dossier should include the following topics, highlighting strong and weak points:

1) - Identification of the area
2) - Scientific description (international geological significance, geodiversity, number of geosites, etc.)
3) - General information on the area
   - geographical setting, economic situation
   - population, infrastructure, employment
   - natural landscape, climate, biology, habitats
   - human activity, cultural heritage, archaeology
4) - Management plan and structure
5) - Sustainable development policy strategy and importance of tourism in this context (regional development territorial action plan)
6) - Arguments for the nomination as a Geopark within the Global Network

Signature part:

7) - Letter of expression of interest accompanying the application
8) - Official application signed by the competent authorities
9) - Endorsement by National Commission for UNESCO of the country where the Geopark is situated
10) - Endorsement by a National Geoparks Network (if existing in the country)
11) - Annex (self-evaluation form on Geopark:
    part A) Description of the area
    part B) Geoparks Progress Evaluation (for Geoparks review and reporting see below)

2. Application from European countries

- A Geopark located in Europe wishing to become member of the Global Network of National Geoparks, is invited to submit a full application dossier to the coordination office of the European Geoparks Network (EGN), which acts as the integration organization into the Global Network for the European continent. The Global

Network of National Geoparks of UNESCO and the European Geoparks Network were designed in parallel on a common conceptual basis. Pursuant to this, national applications to the Global Network from European countries are implemented through the EGN. As a permanent member of the advisory board and expert committees of the EGN, UNESCO participates at every stage in the evaluation of and decision on the applications.

- UNESCO and the EGN have signed two agreements in this respect, the "Agreement for co-operation between the Division of Earth Sciences of UNESCO and the Network of European Geoparks" (2001, Almeria, Spain), and the "Madonie Declaration" (2004, Madonie Italy). As a result, the EGN acts as Global Geoparks Network in Europe.
- The EGN was established in June 2000 by four European Geoparks with the aim to protect geological heritage and promote the sustainable development of their areas, further, to create a strong European thematic group of territories involved in sustainable development, and to prepare and negotiate new common European Programmes.
- European candidates submit their application forms through the Coordination Unit of the European Geoparks Network, Réserve Géologique de Haute Provence, Dinge-les-Bains, France from whom up-to-date advise and assistance should be requested in advance.

Coordination Unit
European Geoparks Network
Réserve Géologique de Haute-Provence
BP 156
F-04005 Digne-les-Bains cedex
France

Phone: + 33 (0) 4 92 36 70 72
Fax: + 33 (0) 4 92 36 70 71
Contact Mrs. Sylvie Giraud
E mail : s.giraud@resgeol04.org
www.europeangeoparks.org

III. Reporting and Periodical review

- The status of each Geopark shall be subject to a periodical review within 4 years. This review is based on a progress report prepared by the designated authority concerned in cooperation with respective authorities that signed the original proposal, and forwarded to the Geoparks Secretariat at UNESCO through the National Commission for UNESCO.

- If on the basis of this report, the independent expert group of UNESCO considers that the status or management of the park is satisfactory since it was designated or last reviewed, this will be formally acknowledged and the Geopark will continue to be member of the Global Network.
- If it is considered that the Geopark no longer fulfils the criteria of the Global Geoparks Network set out in the present guidelines, the designated Geopark authority concerned will be recommended to take appropriate steps to ensure maintenance of the accepted standards. Should the Geopark not fulfil the criteria within two years, it shall be removed from the list of the Global Network of National Geoparks and cease to benefit from all the privileges associated with the Global Geopark Membership including the use of the Global Geopark Network's logo.
- UNESCO shall notify the designated authority concerned and the National Commission for UNESCO of the outcome of the periodical review.
- Should a Geopark and the sovereign authority wish to withdraw from the attributed association, it shall notify the Geoparks Secretariat through its National Commission giving the reasons thereto.
- For any modification concerning the physical conditions of the Geopark like, for example, a change of its surface area, members of the Global Network have submitted an official request. At any time it is possible for an existing Geopark to modify its surface and request approval from the Geoparks Bureau of a changed surface area. This includes also the use of the logo within these new enlarged territories.
- The designation of an area as member of the Global Network of National Geoparks shall be given appropriate publicity and promotion by the management body of the Geopark concerned. It shall also keep UNESCO regularly informed about the ongoing progress and developments in the park. This refers to special events (e.g. twinning, inaugurations) and their promotion through appropriate publicity and website links that can be easily connected and reach a worldwide public.

Source:

GUIDELINES AND CRITERIA FOR NATIONAL GEOPARKS SEEKING UNESCO'S ASSISTANCE TO JOIN THE GLOBAL GEOPARKS NETWORK. 2007. Global Geoparks Network. United Nations Educational, Scientific and Cultural Organization (UNESCO): 10pp (http://www.unesco.org/science/earth/geoparks/2007guidelinesJanuary.pdf).

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11. THE OSNABRÜCK DECLARATION - 2008

(http://www.globalgeopark.org/publish/portal1/tab80/info3213.htm)

The delegates at the 3rd International Conference on Geoparks, held from June 22- 26 2008 during the United Nations International Year of Planet Earth and held in the city of Osnabrück, Gelmany hereby affirm that:

1. Geoparks are experimental territories for the 21 st century with the joint aims of preserving the rich geological heritage of our planet and using that heritage for the sustainable development of our local communities.
2. Geoparks provide excellent tools for communicating the memories of the Earth not only to local communities but to the wider public both through the provision of educational and sustainable geotourism activities.
3. The amended guidelines and operational procedures for the Global Geoparks Network, adopted at this meeting, provide an excellent framework for the further development of high quality, active geoparks and the basis from which a strong network will continue to develop.
4. We commit to continue to work together to achieve our common goals of the protection and appreciation of the geodiversity of the planet through cooperation and networking between the members of the Global Geoparks Network and to assist aspiring geopark projects in attaining geopark status.
5. While continuing to work in close cooperation with the World Heritage and the Man and the Biosphere programmes, the geopark community will continue to explore ways of further building and strengthening the profile of the Global Geoparks Network within UNESCO and across the world generally.
6. Recognising that communication is the key to our success, the global geological community should continue to work together in communicating the importance of geological issues, such as geohazards and climate change, to society and recognise that geoparks an~ a valuable tool in doing this.
7. In order to achieve these aims, geoparks need to continually work with local communities and stakeholders to ensure that geoheritage issues are fully recognised, understood and enjoyed by all.

Osnabrück, Deutschland (Germany) 26 June 2008