

Nuclear energy in Africa: A legal framework for sustainable energy access

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Opsomming

Die bevordering van volhoubare ontwikkeling is 'n doelwit van die Afrika Unie (AU). Die bepalings van die *Constitutive Act of the African Union*, 2000 en die *Treaty Establishing the African Economic Community*, 1992 (Abuja Verdrag) bevat beide 'n uitdruklike mandaat in hierdie verband. Die gebrek aan toegang tot moderne energiebronne, soos elektrisiteit tesame met intense afhanklikheid van tradisionele biomassa as primêre energiebron is faktore wat die bevordering van volhoubare ontwikkeling belemmer. Hierdie faktore word ook saam geklassifiseer as energiearmoede (energy poverty). Die oorgrote meerderheid van Afrikane het min of geen toegang tot moderne energiebronne nie en is ook afhanklik van tradisionele biomassa vir hulle primêre energie behoeftes. Dit is duidelik dat Afrika as 'n energiearmoedige streek geklassifiseer kan word. Die energiearmoede wat in Afrika heers affekteer die bevordering van volhoubare ontwikkeling in 'n negatiewe sin. Toegang tot betroubare, bekostigbare, ekonomies lewensvatbare, sosiale aanvaarbare en omgewingsvriendelike energie is nodig vir sosio-ekonomiese ontwikkeling. Om die negatiewe impak van energiearmoede op die bevordering van volhoubare ontwikkeling hok te slaan, is verhoogde/verbeterde toegang tot vermelde energiebronne nodig.

Die bogenoemde regs-instrumente bevat voorts bepalings wat regionale samewerking afgespits op die formulering van gekoördineerde regionale reg en beleid ten opsigte van algemene aangeleenthede verbind met die bevordering van volhoubare ontwikkeling. Regionale samewerking moet dus gemik wees op die effektiewe ontwikkeling van die kontinent se energie- en natuurlike hulpbronne, die ontwikkeling van nuwe- en hernubare bronne van energie en die daarstel van voldoende meganismes vir 'n belynde en gekoördineerde oplossing tot die energieontwikkeling uitdagings in die AU. Die formulering van gekoördineerde energie reg en beleid moet plaasvind ten opsigte van spesifieke bronne van energie. Met verwysing na spesifieke bronne van energie verwys die Abuja Verdrag sowel as ander sub-regionale programme na verskeie bronne van energie – waarvan kern-energie een is.

In hierdie navorsingstuk sal daar verskeie voorstelle gemaak word wat handel oor die inhoud van 'n gekoördineerde AU regionale regsraamwerk vir die regulering van verhoogde toegang tot kern-energie as middel tot bevordering van volhoubare ontwikkeling. Die voorstelle sal gefundeer word in 'n ondersoek van relevante internasionale-, regionale- en sub-regionale regsinstrumente, onder andere.

Sleutelwoorde: Afrika Unie, volhoubare ontwikkeling, energie armoede, toegang tot energie, kern energie, regionale samewerking, gekoördineerde regsraamwerk.

Abstract

The promotion of sustainable development is an objective shared by African Union (AU) member states and the pursuance thereof is expressly mandated by the *Constitutive Act of the African Union, 2000* and the *Treaty Establishing the African Economic Community, 1992*. Lack of access to modern energy sources, such as electricity and the heavy reliance on traditional biomass as primary energy source are factors contributing to the non-achievement of the promotion of sustainable development. These factors are collectively referred to as energy poverty. The African Continent as a whole has limited, and in some instances, lack access to modern energy sources while the majority of its population relies heavily on traditional biomass as primary energy source. Africa can accordingly be classified as an energy poor region—a situation which does not bode well for the promotion of sustainable development. Access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services and resources is fundamental to socio-economic development. Mitigating the impacts of energy poverty and more specifically lack of access to modern energy sources on the sustainable development of Africa depends upon ensuring increased access to modern energy sources.

The above-mentioned instruments furthermore contain provisions which link regional cooperation on the formulation of coordinated regional law and policy on areas/matters of common concern with the achievement of the objective of promoting sustainable development in Africa. One of the areas of common concerns listed is that of energy. Regional cooperation must accordingly be geared towards the effective development of the continent's energy and natural resources; promoting the development of new and renewable energy in the framework of the policy of diversification of sources of energy; and establishing an adequate mechanism of concerted action and coordination for the collective solution of the energy development problems within the AU. The formulation of coordinated energy law and

policy should take place with reference to the specific sources of energy to be regulated. In this regard, the provisions of the Abuja Treaty and other sub-regional energy access initiatives list various sources of energy as forming part of a diversified AU energy mix – one of which is nuclear energy.

In this study recommendations are made as to what should be embodied in a coordinated AU regional nuclear legal framework aimed at regulating increased access to nuclear energy capable of contributing towards the promotion of sustainable development. The recommendations are based on an examination of relevant international, regional and sub-regional legal instruments and other initiatives.

Keywords: African Union, sustainable development, energy poverty, energy access, nuclear energy, regional cooperation, coordinated legal framework.

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List of abbreviations

ACHPR	African Commission on Human and Peoples Rights
AEC	African Economic Community
AEEP	African-European Union Energy Partnership
AEUSP	African-European Union Strategic Partnership
AFCONE	African Commission on Nuclear Energy
AFRA	The African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology
AFREC	African Energy Commission
AGECC	UN-Energy/Secretary-General's Advisory Group on Energy and Climate Change
AMCEN	African Ministerial Conference on the Environment
APRM	African Peer Review Mechanism
ARWA	African Regional Workshop on Adaptation
AU	African Union
CAFREC	Convention of the African Energy Commission
CAHOSCC	Conference of African Heads of State and Government on Climate Change
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEDAW	Convention on the Elimination of All Forms of

	Discrimination Against Women
CESCR	UN Committee on Economic, Social and Cultural Rights
CNS	Convention on Nuclear Safety
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of Parties
CPPNM	Convention on Physical Protection of Nuclear Material
DRC	Democratic Republic of Congo
EAC	East African Community
ECOSOCC	Economic, Social and Cultural Council
ECOWAS	Economic Community of West-African States
EIA	Environmental Impact Assessment
ESI	Environmental sustainability indicator
EU	European Union
EURATOM	European Atomic Energy Agency
EWC	Endorois Welfare Council
GAA	Global Action Agenda
GHG	Greenhouse gas
GRI	Global Reporting Initiative
GWh	Gigawatt hour
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
IEA	International Energy Agency
IEEE	Institute of Electrical and Electronics Engineers

ILA	International Law Association
ILF	International legal framework
ILM	International Legal Materials
INLEX	International Expert Group on Nuclear Liability
INSAG	International Nuclear Safety Advisory Group
IPCC	Intergovernmental Panel on Climate Change
ISDL	International sustainable development law
IUCN	International Union for the Conservation of Nature
JPOI	Johannesburg Plan of Implementation
LAP	Legislative Assistance Programme
LDC	Least Developed Country
LPG	Liquefied petroleum gas
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreement
MOU	Memorandum of Understanding
MPI	Multi-dimensional Poverty Index
NAPA	National plan of action
NEA	Nuclear Energy Agency
NEPAD	New Partnership for Africa's Development
NPP	Nuclear power plant
NPT	Non-proliferation Treaty
OAU	Organisation for African Unity
OECD	Organisation for Economic Cooperation and Development
PAP	Pan-African Parliament
RCF	Regional Cooperative Framework
REC	Regional Economic Community

RECP	Renewable Energy Cooperation Programme
RISDP	Regional Indicative Strategic Development Plan
RSA	Republic of South Africa
SERAC	Social and Economic Rights Action Centre
SSA	Sub-Saharan Africa
TCP	Technical Cooperation Programme
TCS	Technical Cooperation Strategy
TESI	Techno-economic sustainability indicator
UMEAC	Universal modern energy access case
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNCED	United Nations Conference on the Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Programme
UNDPR	United Nations Development Programme Report
UNEA	United Nations Energy Agency
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHDR	United Nations Human Development Report
UNIDO	United Nations Industrial Development Organisation

UNSEI	United Nations Sustainable Energy for All Initiative
US	United States
WCED	World Commission on Environment and Development
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development
WWF	World Wildlife Fund

1 Introduction

1.1 African Union mandate for the promotion of sustainable development

In terms of the provisions of the *Constitutive Act of the African Union, 2000* (Constitutive Act), one of the objectives common to the member states of the African Union (AU) relates to promoting the sustainable development of the continent.¹ The level of success achieved in fulfilling each of the individual objectives listed by the provisions of the Constitutive Act, as well as the specific objective of sustainable development, will depend heavily upon increased cooperation between member states.² The African Economic Community (AEC) established in terms of the provisions of the Constitutive Act reiterates this objective in the provisions of the *Treaty Establishing the African Economic Community, 1992* (Abuja Treaty). The objectives of the AEC include: promoting economic, social and cultural development and the integration of African economies; establishing a continental framework for the development, mobilisation and utilisation of the human and material resources of Africa; promoting cooperation in all fields of human endeavour; and coordinating and harmonising policies among existing and future economic communities.³ The Abuja Treaty furthermore states that activities related to the achievement of the above-mentioned objectives should contribute to the endogenous, self-sustained and self-reliant development of the continent.⁴

These provisions echo largely the language of the *Charter of the United Nations, 1945* (UN Charter), which provides that international cooperation must be geared

¹ To this effect, the Constitutive Act states as one of the objectives of the AU the promotion of sustainable development at the economic, social and cultural levels. See Article 3(j) of the Constitutive Act. For an overview of the general objectives of the AU as provided for by the provisions of the Constitutive Act see Article 3 of the Constitutive Act.

² For the purposes of this research, the term cooperation should be seen to include the integration of African economies through the coordination and harmonisation of policies between the existing and future Regional Economic Communities (hereinafter referred as RECs). Article 3(j) and 3(l) of the Constitutive Act.

³ Article 4(1) of the Abuja Treaty.

⁴ Article 4(1)(a) of the Abuja Treaty.

towards solving problems of an economic, social, cultural or humanitarian nature while taking human rights and other fundamental freedoms into consideration.⁵ These provisions must be read together with those contained in Article 55 (a) and (c) of the UN Charter, which states that one of the goals of international cooperation must be that of economic and social progress and development. In order to achieve these goals a member state must "take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realisation of the rights recognised in the present Covenant".⁶

Sustainable development as a common objective of AU member states is also reaffirmed by the provisions of the *New Partnership for Africa's Development* (NEPAD).⁷ The NEPAD, which is a programme of the AU, embodies the development strategy of the AU and states as its mission: the eradication of poverty, sustainable growth and development and the promotion of Africa's role in the global economy.⁸ The mandate contained in the provisions of the Constitutive Act and the Abuja Treaty and the NEPAD clearly establishes the promotion of sustainable development as an objective common to all AU member states.

1.2 Energy poverty and sustainable development

With reference to the continent's overall development status, the situation in Africa as a whole and Sub-Saharan Africa (SSA) specifically can be labelled as critical. In terms of the United Nations Conference on Trade and Development (UNCTAD) list of Least Developed Countries (LDCs), 33 countries out of the 53 member states

⁵ Article 1(3) of the UN Charter.

⁶ Article 2(1) of the *International Covenant on Economic, Social and Cultural Rights*, 1966 (ICESCR).

⁷ The NEPAD is a programme of the AU adopted in Lusaka, Zambia in 2001. NEPAD is a radically new intervention, spearheaded by African leaders to pursue new priorities and approaches to the political and socio-economic transformation of Africa. NEPAD's objective is to enhance Africa's growth, development and participation in the global economy. See www.nepad.org [date of use 3 December 2012].

⁸ Paragraph 1 of NEPAD.

comprising the AU are considered LDCs.⁹ The term LDC refers to a state that is deemed highly disadvantaged in its development and faces a particularly significant risk of failing to eliminate or even reduce poverty. The UN uses three criteria for categorising a state as a, LDC, namely a low per capita income, weak human assets, and economic vulnerability.¹⁰ African LDCs especially suffer from extreme and persistent poverty, weak and volatile economic growth, poor infrastructural capacity, and inadequate social services.¹¹ The structural weaknesses characterising African LDCs' economic, institutional and human resources lead to high levels of poverty which can be described as probably the most definitive indicator of the non-achievement of the Millennium Development Goals (MDGs).¹²

The *United Nations Millennium Declaration, 2000*¹³ (Millennium Declaration) lists the eight MDGs as: the eradication of extreme poverty and hunger; the achievement of universal primary education; the promotion of gender equality and the empowerment of women; the reduction of child mortality; the improvement of maternal health; success in combating HIV/AIDS, malaria and other diseases; environmental sustainability; and membership of a global partnership for development. The MDGs represent a practical expression of the principle of equilibrium between the economic, social and environmental pillars of sustainable development and focus especially on the needs of the worlds' poor and developing nations to replace insecurity and vulnerability with access to opportunity.¹⁴ The Millennium Declaration acknowledges the link between the achievement of the MDGs and the promotion of sustainable development and in this regard expressly refers to the concept of sustainable development.¹⁵ A relationship between the MDG initiative and the sustainable development agenda is therefore evident in the sense that the achievement of the one in essence leads to the promotion of the other. Linking access to modern energy to the promotion of sustainable development is accordingly possible by establishing the positive impact increased energy access is set to have

⁹ UNCTAD LDC Report 2011.

¹⁰ See www.unctad.org [date of use 25 August 2011].

¹¹ UNECA 2001-2005.

¹² UN Conference for LDCs 2008 2.

¹³ A/RES/55/2.

¹⁴ Adger and Winkles "Vulnerability" 194.

¹⁵ Paragraphs 6 and 22 of the Millennium Declaration.

on the achievement of the MDGs. Access to modern energy¹⁶ services, though not specifically mentioned as an MDG, is as fundamental to the promotion of socio-economic development as it is to mitigating the effect of a lack of access to modern energy.¹⁷ Herein lies the major challenge to promoting sustainable development in Africa: the most common energy challenge faced by African LDCs is extremely restricted access to reliable modern energy sources,¹⁸ which is an indicator of energy poverty.¹⁹ Cognisant of the causal relationship between achieving the MDGs and the promotion of sustainable development, it is possible to draw the following inference: The non-achievement of the MDGs individually or collectively caused by the lack of access to reliable modern energy correlates directly with the levels of success in promoting sustainable development.²⁰ Therefore, in order to address the

¹⁶ Access to modern energy services should be understood as household access to electricity and clean cooking facilities. IEA *World Energy Outlook* 2010 8.

¹⁷ The impacts related to the lack of access to modern energy cut across the social, economic and environmental spheres and are especially challenging to LDCs. The social impacts related to low or non-existent levels of access to modern energy relate to matters such as gender inequality, healthcare, education, and overall poverty alleviation. With reference to the economic impacts, the ability of low-income communities or LDCs to make productive use of their natural resources, time and human energy, is severely hampered by the lack of mechanical power. At the environmental front, the most prominent challenge related to the situation of the lack of access to modern energy is the exacerbating effect it has on the challenges related to global climate change. In this regard, it is not only access to modern energy services that is important but also access to climate-friendly or low emissions technologies. The environmental benefits connected with the increased access to modern, climate-friendly energy will be discussed in Chapter 4. For an overview of these and other developmental impacts related to lack of access to modern energy see Bazilian and Nussbaumer "UNIDO Contribution" 3 – 4; UNECA 2008 20.

¹⁸ The statistics associated with the energy situation in Africa are staggering, taking into consideration that 589 million Africans have no access to electricity at all and 657 million are reliant on the traditional use of biomass for basic cooking needs. This translates into the whole of Africa having an electrification rate of 40%, of which 66% accounts for urban electrification and 22% for rural electrification. The situation in SSA is even more severe. Of the 589 million people in Africa lacking access to electricity, 587 million are inhabitants of SSA. This translates into an electrification rate of only 28% for the SSA region. The reliance on biomass for cooking is also extremely high in SSA, with 653 million people being almost exclusively dependent upon this traditional source of energy. See UN Conference for LDCs 2008 4; World Bank 2010 8.; IEA *World Energy Outlook* 2010 9.

¹⁹ In applying its Multidimensional Poverty Index (MPI), UNDP in its *UN Development Report, 2010* (UNDP) includes the lack of access to reliable energy as a non-income dimension of poverty. The MPI is a measure recognising the multiple areas of deprivation which overlap and finally constitute the poverty. The MPI is important in the sense that it acknowledges non-income dimensions of poverty such as health, education and living standards as being as important as income-based dimensions such as average income and wages. It lists the two energy indicators related to the non-income dimension of lack of access to energy as electricity and cooking fuels. In the context of multi-dimensional poverty, these energy indicators should translate into energy poverty, which is understood as a situation characterised by having no access to electricity and relying on traditional biomass such as wood, charcoal, and dung for cooking. UN HDR 2012 7. The definition of energy poverty by the International Energy Agency (IEA) is that energy poverty is comprised of two main elements, namely a lack of access to electricity on the one hand and a reliance on traditional biomass fuels for cooking on the other. Gaye "Access" 2007 4.

²⁰ Bazilian and Nussbaumer "UNIDO Contribution" 3.

detrimental developmental impacts of the lack of access to energy, increased access to reliable, modern energy sources must be facilitated. The current energy poverty crisis and its impacts on African development provide the contextual basis for the following hypothesis: The normative response to the lack of access to modern energy at the AU level should focus on improving access to energy sources capable of promoting sustainable development.

1.3 Energy access and the promotion of sustainable development

Access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services and resources is fundamental to socio-economic development.²¹ The provision of energy services coupled with increased access thereto would have direct effects on energy and economic security, and promote development.²² The joint UN-Energy/Secretary-General's Advisory Group on Energy and Climate Change (AGECC) defines energy access as “access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses”. In terms of this definition, “affordable” with reference to LDCs and developing countries should be seen to imply that the cost to end-users is compatible with their income levels and not higher than the cost of traditional fuels. These energy services must be put to productive uses that positively affect livelihoods. In other words, they must facilitate the promotion of sustainable development by means of the achievement of the MDGs throughout the African continent.²³ Despite having some persuasive force in international law, the MDGs and sustainable development lack legal status and resort under soft law. This means that no legal basis for ensuring the achievement of either the MDGs or sustainable development exists, as both amount to mere political commitments with no legal force. The hypothesis is put forward that the conceptual basis for establishing and implementing increased energy access as a primary normative

²¹ *UN Report of the World Summit on Sustainable Development (2002) A/CONF. 199/20 17.*

²² Sovacool BK "The political economy of energy poverty: A review of key challenges" 2012 *Energy for Sustainable Development* 16 272.

²³ Bazilian and Nussbaumer "UNIDO Contribution" 5 - 6.

response to energy poverty in the AU exists in the relationship between the MDGs, sustainable development and human rights.

1.4 The MDGs, sustainable development and human rights

The nature of the relationship between sustainable development and the MDG initiative will provide the conceptual basis for the hypothesis that the existence of a relationship with human rights with one initiative necessarily implies a link with the other. Stated differently, if the MDGs reflect a human rights agenda, the same is true of sustainable development. The 2003 UN Human Development Report clearly states that: the MDGs not only "mirror the fundamental motivation for human rights", but they also "reflect a human rights agenda – rights to food, education, health care and decent living standards."²⁴ This relationship provides the conceptual basis for proposing that existing human rights at the international and regional level be applied in establishing a right to energy which will serve as legal basis for increased access to energy in Africa.

1.5 The right to energy and the AU mandate for the inclusion of nuclear energy

At the AU level, "freedom, equality, justice and dignity" are essential objectives in the realisation of human rights in Africa.²⁵ The *African Charter on Human and People's Rights*, 1986 (Banjul Charter) provides that the realisation of the right to development is critical in achieving these objectives.²⁶ It is furthermore stated that political and civil rights cannot be dissociated from economic, social and cultural rights and that the achievement of one set of rights inevitably leads to the achievement of the other.²⁷ Reaffirming the provisions of the OAU Charter, the Banjul Charter states

²⁴ See paragraphs 27 and 29 of the UNDP 2003.

²⁵ Preamble of the *Organisation of African Unity*, 1963 (OAU Charter).

²⁶ Article 22 of the Banjul Charter.

²⁷ The indivisible nature of human rights is confirmed by various international instruments. The *Proclamation of Tehran*, 1986 states "since human rights and fundamental freedoms are

that the realisation of human rights in Africa depends upon regional cooperation as well as international cooperation with due regard to the UN Charter²⁸ and the *Universal Declaration of Human Rights*, 1948 (Universal Declaration).²⁹ The Banjul Charter therefore clearly links the realisation of the right to development with regional cooperation on the promotion of and respect for economic, social, cultural, civil and political rights. The inclusion of the right to development in the text of the Banjul Charter is meant to facilitate African sustainable development by means of the progressive realisation of human rights. Article 22 of the Banjul Charter specifically enshrines the right to development. Development in the context of the Banjul Charter must be seen to include social, cultural and economic development coupled with the enjoyment of the common heritage of mankind.³⁰ The provision furthermore tasks member states with the duty to ensure the exercise of the right to development either individually or collectively.³¹ Closely related to the right to development as enshrined in article 22 of the Banjul Charter is article 24 which contains the right to a generally satisfactory environment favourable to development. While article 24 does not state the criteria for a generally satisfactory environment, the established link between access to energy and the promotion of sustainable development provides

indivisible, the full realization of civil and political rights without the enjoyment of economic, social and cultural rights is impossible.” In 1969 the *Declaration on Social Progress and Development* further emphasized the interdependence of these two sets of rights. This led to the formulation of the *Draft Declaration on the Right to Development*, which was formally adopted by the General Assembly in December 1986 as a non-binding resolution of the UN. In 1993 the right to development was reaffirmed by the Vienna Declaration, which stated that “the right to development, as established in the Universal Declaration, is a universal and inalienable right and an integral part of fundamental human rights”. See the *Proclamation of Tehran* proclaimed by the International Conference on Human Rights at Tehran on 13 May 1968, U.N. Doc. A/Conf.32/41, U.N. Sales No. E.68.XIV.2, endorsed by G.A. Res. 2442 (XXIII) 19 Dec. 1968; Declaration on Social Progress and Development, adopted 11 Dec. 1969, G.A. Res. 2542 (XXIV), U.N. GAOR 24th Sess., Supp. No. 30, at 49, U.N. Doc. A/7630 (1969); The Declaration on the Right to Development, adopted 4 Dec. 1986, G.A. Res. 41/128 U.N. GAOR, 41st Sess., at 3, Annex, U.N. Doc. A/Res/41/128 Annex (1987); Vienna Declaration and Programme of Action, U.N. GAOR, World Conference on Human Rights, 48th Sess., 22d plenary meeting, pt. 1, U.N. Doc. A/CONF.157/23 (1993).

²⁸ In terms of the provisions of the UN Charter, international cooperation must be geared towards solving problems of an economic, social, cultural or humanitarian nature while taking human rights and other fundamental freedoms into consideration. These provisions must be read together with those contained in Article 55 (a) and (c) of the UN Charter, which states that one of the goals of international cooperation must be that of economic and social progress and development. Article 1(3) of the UN Charter.

²⁹ 21 I.L.M 59(1982). The Universal Declaration similarly recognises the central role of international cooperation in promoting respect for and observance of human rights. It furthermore draws the link between social progress and better standards of living and the realisation of human rights and fundamental freedoms.

³⁰ Article 22(1) of the Banjul Charter.

³¹ Article 22(2) of the Banjul Charter.

the conceptual basis for the following proposal. The legal basis for ensuring the promotion of sustainable development by means of increased energy access in Africa should take the form of a right to energy. The formulation of a right to energy in turn should find its legal basis in the mandates contained in article 22 read with article 24 of the Banjul Charter. The normative response to addressing energy poverty at the AU level, namely increased access to modern energy, must be based on the realisation of the existing human rights provided for in the Banjul Charter. With reference to the sources of modern energy to be included in the AU normative response of increased access to modern energy, nuclear energy is expressly included in terms of the provisions of the Abuja Treaty.³² This chapter will conclude with an overview of the concept of sustainable energy and a discussion of the sustainability indicators of nuclear energy. The normative response to energy poverty at the AU level should take place in accordance with the mandate for regional cooperation aimed at the formulation of coordinated regional law and policy contained in the provisions of the Constitutive Act as well as the Abuja Treaty.

1.6 Coordinated law and policy as a normative response to energy poverty

In terms of the provisions of the Constitutive Act and the Abuja Treaty, regional cooperation aimed at formulating coordinated regional law and policy is conducive to the promotion of sustainable development.³³ Furthermore, the *Protocol on Relations between the AU and the Regional Economic Communities* (RECs Protocol), which entered into force in 2007, states that cooperation among RECs on formulating coordinated regional law and policy is indispensable to achieving the AEC's objective of promoting sustainable development.³⁴ These provisions serve as a clear indication that not only is increased cooperation on the formulation of coordinated law and policy an express mandate at the AU level, but it is also a pre-requisite for the promotion of sustainable development.

³² Article 55 of the Abuja Treaty.

³³ Notes 2, 4 and 6 above.

³⁴ Article 4(a) of the RECs Protocol read in conjunction with Article 4(1)(a) of the Abuja Treaty.

Increased cooperation should be construed as being both an objective as well as an effecting mechanism for the achievement of other common objectives of AU member states. In practical terms, increased cooperation among AU member states and RECs should be seen as a mechanism giving effect to an objective such as the establishment and implementation of harmonised policies on “all fields of human activity related to raising the living standards of African peoples”.³⁵ It is proposed that increased cooperation resulting in harmonised regional policies on “raising the living standards of African peoples” is strongly linked to the promotion of the sustainable development of AU member states individually and the AU as a collective entity. Especially relevant to the purview of this thesis are the provisions related to the harmonisation of national policies in the field of energy and natural resources, among others, in order to promote AEC activities.³⁶ To this end, member states and RECs must focus for instance on ensuring the effective development of the continent’s energy and natural resources; promoting the development of new and renewable energy in the framework of the policy of diversification of sources of energy; and establishing an adequate mechanism of concerted action and coordination for the collective solution of the energy development problems³⁷ within the AU.³⁸ Against the backdrop of the above-mentioned mandate, an overview of some sub-regional initiatives on increasing access to modern energy will be provided. In this regard, the initiatives of the Southern African Development Community (SADC), the East-African Community (EAC) and the Economic Community of West-African States (ECOWAS) relating to access to modern energy will be elaborated upon.

The mandates contained in the instruments mentioned above lead to the hypothesis that the law and policy aimed at regulating increased access to modern energy as a normative response to energy poverty must stem from regional cooperation among RECs and member states alike. The formulation of coordinated energy law and policy should take place with reference to the specific sources of energy to be

³⁵ Article 3(k) and 3(l) of the Constitutive Act.

³⁶ Activities include establishing coordinated and harmonised regional policies. See articles 4(2)(b) and (e), 54(1) of the Abuja Treaty.

³⁷ These include difficulties with energy transmission and a shortage of skilled technicians and financial resources.

³⁸ Article 54(2)(a), (c) and (f) of the Abuja Treaty.

regulated. In this regard, the provisions of the Abuja Treaty and other sub-regional energy access initiatives list various sources of energy as forming part of a diversified AU energy mix – one of which is nuclear energy. Throughout the African continent, nuclear energy still represents a minor contribution towards regional energy generation, with coal-fired electricity plants and traditional biomass representing by far the highest contributing energy sources. This notwithstanding, the Abuja Treaty expressly includes nuclear energy as part of a diversified African energy mix³⁹ focused on sustainable energy generation.⁴⁰ Furthermore, several sub-regional instruments such as the *East African Community Regional Strategy on Scaling-up Access to Modern Energy Services, 2006 – 2010* (EAC Strategy); and the *Economic Community of West African States White Paper for a Regional Energy Policy, 2009* (ECOWAS White Paper) clearly establish nuclear energy as forming part of a diversified African energy mix geared towards the promotion of the sustainable development of the African continent.

An overview of regional nuclear energy initiatives and other regional instruments will highlight the fact that the regulation of the implementation or expansion of nuclear energy in Africa must take place in terms of coordinated regional law and policy. The existing AU nuclear initiatives furthermore specify that nuclear energy activities in Africa take place in accordance with the international standards set out by the International Atomic Energy Agency (IAEA). The hypothesis is made that the legal instruments comprising the IAEA legal framework embody an internationally acceptable nuclear legal framework. These international instruments need to be incorporated into the proposed AU nuclear legal framework by means of the reception thereof into the national legal systems of AU member states. The inclusion of nuclear energy in the list of energy sources, the increased access to which should be regulated in terms of coordinated AU legal frameworks, leads to the following question: What should be included in a coordinated legal framework aimed at the regulation of increased access to nuclear energy at the AU level?

³⁹ Ensuring a diverse range of energy sources will work towards sustainable energy supply throughout the region as the risk of depleting any one natural resource is curbed. In terms of the Abuja Treaty the AU's energy mix should include mineral and water resources, nuclear energy and new and renewable energy. Article 55(1)(a) – (c) of the Abuja Treaty.

⁴⁰ Article 55 of the Abuja Treaty.

1.7 Structure and methodology

In addressing the central research question as identified above, this thesis will be divided into seven chapters (including the introduction and conclusion), each pertaining to various inter-related topics. Having established the promotion of sustainable development as an objective of the AU, the author will identify energy poverty as a factor inhibiting the achievement of the said objective in Chapter Two. In so doing, the concept of energy poverty will be analysed with respect to its international definition, which includes dependence on traditional biomass as a primary energy source and a lack of access to modern energy sources. Specific focus will fall on the lack of access to modern energy as a manifestation of energy poverty and its impact on sustainable development, which is evident from the non-achievement of the MDGs. The apparent link between a lack of access to modern energy and the non-achievement of the objective of sustainable development will provide the basis for proposing increased access to modern energy as a primary normative response to energy poverty at the AU level. The chapter will conclude with an overview of the major challenges to increasing access to modern energy in Africa and the importance of a regional approach to addressing these challenges will be highlighted. This regional approach to increased access to modern energy will ultimately facilitate efforts towards realising the objective of promoting sustainable development in Africa.

Mindful of the central importance of sustainable development as an AU objective, Chapter Three will comprise a detailed discussion of the evolution of sustainable development in contemporary international law. In the first instance, the status of sustainable development in international law will be evaluated with reference to international case law and academic discourse. This will be followed by a discussion of the importance of soft law in the international law-making process with specific reference to sustainable development as a normative concept consisting of soft law principles. A brief overview of the historical development of sustainable development will be followed by a discussion of the principles of international law pertaining to sustainable development as well as the synergies between sustainable

development and other international development initiatives. The relationship between sustainable development and the MDGs will be of specific relevance in this regard. In the final instance, the so-called third phase of sustainable development will be evaluated. The challenges pertaining to its implementation coupled with its soft law status will provide the theoretical bases for proposing another model for establishing a legal basis for the AU's normative response to energy poverty. The conceptual basis for this proposed new model lies in the nature of the relationship between sustainable development, the MDGs and human rights.

Chapter Four will contain an exposition of the nature of the relationships between sustainable development and the MDGs in the first instance and the MDGs and human rights in the second. To start with, the extent to which the evolution of the concept of sustainable development influenced the development of the MDGs will be evaluated in order to establish a causal link between sustainable development and the MDGs. Next, the question of whether or not a relationship between the MDGs and international human rights exists and the nature of this relationship will be scrutinized. The nature of the relationship between sustainable development, the MDGs and international human rights will provide the conceptual basis for proposing that a right to energy be distilled from existing international and regional human rights.

Chapter Five will revolve around the topic of distilling a right to energy from existing international and regional human rights. The right to development as both an international and a regional human right will set the context for discussion in this chapter. The right to development as an international human right will be evaluated with reference to its historical evolution, especially regarding its role in establishing the indivisibility of all human rights. At the AU regional level, article 22 of the Banjul Charter contains the right to development, while article 24 lays down a right to a generally satisfactory environment conducive to development. In order to give effect to these rights the author argues that a right to energy should be distilled. The right to energy as proposed will be elaborated upon with specific reference to the interpretation of articles 11 and 12 of the *International Covenant on Economic, Social*

and Cultural Rights, 1966 (ICESCR) as contained in *General Comment 15 of the Committee on Economic, Social and Cultural Rights*, 2002 (General Comment 15).⁴¹ The right to energy as a human right indispensable to the realisation of the right to development provided for by the Banjul Charter will provide the legal basis for the normative response at the AU level to the lack of access to modern energy.

The final chapter (Chapter Six) will detail the components of a coordinated regional legal framework for increased access to nuclear energy in the AU. In the first instance, coordinated regional law and policy based on cooperation among AU member states in the harmonisation of their energy laws and policy will be discussed. Specific attention will be paid to various initiatives of different RECs aimed at increasing access to modern energy resulting from the aforementioned cooperation. Included in the list of energy sources to which access will be increased in terms of these regional initiatives is nuclear energy. An overview of the existing AU nuclear initiatives and/or legal instruments will be provided in order to address the question of what needs to be included in a coordinated regional nuclear energy legal framework. This question will be addressed with specific reference to international nuclear law and the instruments comprising its legal framework.

⁴¹ E/C. 12/2002/11.

2 Energy poverty and Africa

2.1 Introduction

As stated earlier, various regional instruments at the AU level provide that the promotion of the sustainable development of the continent is an objective common to all member states.⁴² One of the factors impacting negatively upon the achievement of the objective of promoting sustainable development in Africa is energy poverty. Energy poverty, and specifically the lack of access to modern energy as a manifestation thereof, also inhibits the fulfilment of the MDGs. The concept of sustainable development and the developmental objectives embodied by the MDGs are so closely linked that the non-achievement of the promotion of sustainable development correlates directly with the level of success in fulfilling the MDGs. The lack of access to modern energy therefore not only results in the non-promotion of sustainable development but also in the non-achievement of the MDGs. This chapter will revolve around the central problem statement of energy poverty and its negative effect on the achievement of sustainable development in African states.

Accordingly, the following topics will be discussed throughout. First, energy poverty will be defined with reference to its manifestation in either the lack of access to a modern energy source or the heavy dependence on traditional biomass as a primary energy source or both. The current African energy situation will be tested against the definition of energy poverty and its two manifestations in order to categorise the African continent as energy poor. The provisions of the IEA's Universal Modern Energy Access Case (UMEAC)⁴³ acknowledges the link between eradicating energy poverty and the achievement of the MDGs by stating explicit goals with reference to

⁴² See note 1 above.

⁴³ The UMEAC qualifies the number of people who need to gain access to modern energy services and the scale of the investments required by 2030. It also includes targets to 2015, related to the achievement of the MDGs – especially with the achievement of eradicating extreme poverty and hunger. IEA World Energy Outlook 2010 16.

increasing access to modern energy and limiting the traditional uses of biomass. The detrimental impact of specifically the lack of access to modern energy on the promotion of sustainable development will be highlighted by a discussion of the positive impacts increased access to modern energy is set to have on the achievement of the MDGs. The central role of access to modern energy in facilitating the fulfilment of the MDGs collectively or individually, coupled with the nature of the relationship between sustainable development and the MDGs, provides the basis for the following inference. The promotion of sustainable development is impossible in countries and/or regions suffering energy poverty manifested in the lack of access to modern energy sources. This will provide the theoretical basis for identifying increased access to modern energy sources as a primary AU normative response to energy poverty, among others.

The need for increased access to modern energy is nowhere more desperate than in the LDCs situated throughout the African continent, and in order to fully understand the extent of this need an exposition of the primary challenges facing African policy makers regarding energy access will be provided. These challenges will be discussed in order to set the context for further discussion on the most suitable mechanisms for achieving the objective of increased access to modern energy. In the final instance, the idea of following a regional approach in addressing the lack of access to modern energy will be elaborated upon in order to reach the conclusion that coordinated regional approaches to increased access to modern energy sources will best serve to promote sustainable development in Africa.

2.2 *Energy Poverty*

Energy poverty is not a concept which is easily definable, mainly because poverty cannot be regarded as a static or fixed state but is rather a multi-dimensional concept related to social, economic and environmental aspects. Accordingly, the 2010 UNDP identifies an MPI as a measure recognising the multiple areas of deprivation which overlap and finally constitute poverty. The MPI is important in the

sense that it acknowledges non-income dimensions of poverty such as health, education and living standards as being as important as income-based dimensions such as average income and wages.⁴⁴ Within its list of non-income dimensions of poverty, the UNDP identifies the lack of access to reliable energy. The two energy indicators related to the non-income dimension of lack of access to energy are electricity and cooking fuels. In the context of multi-dimensional poverty, these energy indicators should translate into energy poverty's being understood as a situation characterised by having no access to electricity and a reliance on traditional biomass such as wood, charcoal, and dung for cooking.⁴⁵

In applying the MPI, the UNDP defines energy poverty as the "inability to cook with modern cooking fuels and the lack of a bare minimum of electric lighting to read or for other household and productive activities at sunset."⁴⁶ Other definitions by international organisations include the definition of the Asian Development Bank (ADB) which states that energy poverty is "the absence of sufficient choice in accessing adequate, affordable, reliable, high-quality, safe and environmentally benign energy services to support economic and human development."⁴⁷ The definition attributed to the concept of energy poverty by the IEA⁴⁸ stipulates that energy poverty is comprised of two main elements, namely lack of access to electricity on the one hand and a reliance on traditional biomass fuels for cooking on the other.⁴⁹ The most common metaphor illustrating energy poverty involves "energy ladders" for energy services such as heating and cooking. An energy ladder is essentially a graph plotting the kinds of energy used by the size of population groups with various amounts of disposable income. The array of types of energy used begins with simple biomass fuels, which are used by the poorest sectors of a

⁴⁴ See paragraph 1.2 above.

⁴⁵ UNDP 2010 7.

⁴⁶ Gaye "Access" 2007 4.

⁴⁷ Masud et al "Energy for all" 5, 14.

⁴⁸ The IEA was established in 1972 by the member states of the OECD. Its mandate is to promote energy security amongst its member states and to advise member states in sound energy policy. For more information on this organisation visit www.oecd.org [date of use 15 September 2011].

⁴⁹ Jones R *Energy Poverty: how to make modern energy access universal? Special Early Excerpt of the World Energy Outlook 2010 for the UN General Assembly on the Millennium Development Goals*. (Paris, IEA/OECD, 2010) 10; and Sovacool BK et al "What moves and works: Broadening the Consideration of Energy Poverty" 2012 *Energy Policy* 42.

population, and goes through coal to liquid and gaseous fossil fuels to electricity.⁵⁰ The idea implies that the primary types of energy used in rural areas or developing countries can be arranged on a “ladder” with the “simplest” or most “traditional” fuels and sources, such as biomass, at the bottom and the more “advanced” or “modern” fuels such as electricity at the top.⁵¹ The ladder is often described in terms of efficiencies, with the more efficient fuels or sources placed higher on the ladder. In the subsequent sections the two components comprising the IEA’s definition of energy poverty will be applied in order to analyse the energy situation characterising the African continent.

2.2.1 Energy Poverty in Africa

According to the IEA, the situation surrounding energy in African states is one characterised by lack of access to electricity combined with a heavy reliance on the traditional use of biomass for cooking.⁵² The statistics associated with the energy situation in Africa are staggering, taking into consideration that 589 million Africans have no access to electricity and 657 million are reliant on the traditional use of biomass for basic cooking needs.⁵³ This translates into the whole of Africa having an electrification rate of 40%. 66% of those with electricity are urban dwellers and 22% are rural. The situation in SSA is even more severe. Of the 589 million people in Africa lacking access to electricity, 587 million are inhabitants of SSA. This translates into an electrification rate of only 28% for the SSA region. The reliance on biomass for cooking is also extremely high in SSA, with 653 million people being almost

⁵⁰ Holdren "Energy" 61 – 110.

⁵¹ For example, kerosene is 3 to 5 times more efficient than wood for cooking, and LPG is 5 to 10 times more efficient than crop residues and dung. See Cook *et al* *Assessing the impact* 21; IEA *World Energy Outlook* 2006 12; IEA, UNDP, UNIDO 2010 15; and Legros *et al* *Energy Access* 9.

⁵² Africa’s energy sector is best understood as three distinct regions: North Africa, which is heavily reliant on oil and gas, followed by South Africa, which depends on coal, and the rest of sub-Saharan Africa, which is largely reliant on biomass. South Africa and North Africa account for over 50% of the continent’s total modern energy production. In terms of installed capacity for electricity generation, South Africa is estimated to account for about half the continent’s total. The reliance on traditional biomass energy is particularly high in sub-Saharan Africa, accounting in some countries for 70–90% of primary energy supply and up to 95% of the total consumption. Even oil-rich sub-Saharan African countries continue to rely on biomass energy to meet the bulk of their household energy requirements: in Nigeria, it is estimated that about 91% of the household energy needs are met by biomass. See Karekezi "Access to modern energy" 12; IEA *World Energy Outlook* 2010 9.

⁵³ World Bank 2010 8.

exclusively dependent upon this traditional source of energy.⁵⁴ Applying the definition of energy poverty provided by the IEA as illustrated by the energy ladder, it is abundantly clear that the African energy situation is one characterised by energy poverty. Before any recommendations are put forward as to what normative response is needed to address energy poverty in Africa, dependence on traditional biomass and the lack of access to modern energy will be discussed as manifestations of energy poverty in Africa.

2.2.2 *Traditional biomass as primary energy source*

The Millennium Project⁵⁵ not only emphasises the central role of modern energy services for development but also sets a clear target with reference to traditional biomass:

By 2015, enable the use of modern fuels for 50 per cent of those who at present use traditional biomass for cooking. In addition, support (a) efforts to develop and adopt the use of improved cook stoves; (b) measures to reduce the adverse health impacts from cooking with biomass; and (c) measures to increase sustainable biomass production.⁵⁶

Meeting such targets is a considerable challenge given the current trends in traditional biomass use in developing countries, and LDCs specifically. Before one can move on to a discussion of the role traditional biomass plays in the current African energy context, it is necessary to draw a distinction between and define the concepts of the so-called "modern use of biomass and "traditional use of biomass". The modern use of biomass – which is also widely referred to as the sustainable use of biomass - refers to the use of biomass sources such as agricultural and forest residues as well as solid waste which are produced in a renewable way, and

⁵⁴ IEA World Energy Outlook 2010 9.

⁵⁵ The Millennium Project was commissioned by the UN Secretary-General in 2002 to develop a concrete action plan for the world to achieve the MDGs and to reverse the grinding poverty, hunger and disease affecting billions of people. For more information on the Millennium Project visit www.unmillenniumproject.org [date of use 14 September 2012].

⁵⁶ See in general Millennium Project, UNDP, World Bank and Energy Sector Management Assistance Programme 2006.

includes electricity generation and heat production, as well as transportation fuels.⁵⁷ The traditional use of biomass, on the other hand, refers to the incomplete combustion of traditional biomass sources⁵⁸ using basic technologies, such as three-stone stoves and open fires.⁵⁹ The distinction between these two types of biomass is important to consider as it is apparent that biomass, if produced and used correctly, could be labelled as sustainable and therefore an important role-player in overall African development. Biomass may be considered sustainable under the following circumstances: where the source used is realistically replaced and where the appliances used for combustion are effective. Unfortunately, though, energy consumption in most rural areas in SSA is characterised by the traditional usage of traditional biomass.⁶⁰

As stated previously the number of people relying on biomass as the primary energy source for their domestic energy needs such as cooking and heating in rural SSA is 653 million.⁶¹ This means that roughly 80% of all people living in rural SSA are dependent on insufficient technologies harnessing forms of biomass harvested in an unsustainable manner. The most common devices used for cooking and subsequent heating include three-stone fires, traditional mud stoves or metal, cement and pottery or brick stoves, which in most instances do not have operating chimneys or hoods.⁶² The fact that these devices lack efficient ventilation systems lead to high levels of indoor pollutants being emitted, which in turn leads to serious health and environmental problems such as the premature death of more than 1.5 million people a year, mostly women and children, from pulmonary disease caused by smoke inhalation; the time spent and physical risk to women foraging for fuel; the degradation of forests and ecosystems; and the climate change impacts of black

⁵⁷ Goldemberg J and Coelho ST "Renewable energy – traditional biomass v modern biomass" 2004 *Energy Policy* 32 713.

⁵⁸ The traditional biomass sources used predominantly throughout SSA include wood, charcoal and agricultural residues. See Goldemberg and Coelho 2004 *Energy Policy* 713.

⁵⁹ Rethinking Biomass Energy in Sub-Saharan Africa 2009 available at www.venro.org/fileadmin/redaktion_afrikas_perspektive/publikationen/Projekt-Publikationen/091124_Afrikas-Perspektive_Bioenergiestudie_Final.pdf [date of use 15 September 2011].

⁶⁰ Throughout this section, further reference to biomass as an energy source should be understood to mean the biomass traditionally burnt to supply energy, unless otherwise indicated.

⁶¹ IEA World Energy Outlook 2010 9.

⁶² IEA World Energy Outlook 2010 13.

carbon emissions.⁶³ Premature deaths due to breathing smoke from poorly-combusted biomass fuels occur mainly among women and young children, who spend most of their time near ineffective cooking devices. It is even more alarming to note that the World Health Organisation (WHO) projects that the current mortality rate will increase to 1.5 million people per year or 4000 people per day by 2030 unless there is targeted action to deal with the problem.

Other social issues connected with the use of biomass as the primary household energy source are related to the activity of fuel gathering. In developing regions where households are heavily reliant on biomass, women and children are generally responsible for fuel collection, which is a time-consuming and exhausting task. As a result of this, many women and children can suffer serious long-term physical damage from engaging in strenuous work without sufficient recuperation. This risk, as well as the hazards of falls, insect bites and human assaults, rises steeply the further the gatherer needs to travel in order to harvest fuels.⁶⁴ It is also difficult for children relying on inefficient and poor-quality sources of lighting, such as candles and kerosene lamps to study after dark.⁶⁵

Apart from the immediate social issues related to inefficient and unsustainable cooking practices by means of biomass combustion, several environmental implications such as the degradation of forests and ecosystems as well as global and regional air pollution come to the fore. In this regard, the high levels of black carbon⁶⁶ emissions in regions characterised by intense reliance on the traditional use of biomass should be considered a matter of great concern, as this situation is severely detrimental to global climate.⁶⁷ The adverse consequences of the use of

⁶³ AGECC 2010 17.

⁶⁴ Bazilian and Nussbaumer "UNIDO Contribution" 3; IEA World Energy Outlook 2010 14; and UNDP 2008.

⁶⁵ Bazilian and Nussbaumer "UNIDO Contribution" 3 and UNDP 2009

⁶⁶ Black carbon (BC) or soot is the most common emission emanating from the incomplete combustion of biomass and other forms of fossil fuels and is emitted by a wide range of sources such as diesel engines, coal-fired power plants and residential cookstoves. See IEA World Energy Outlook 2010 14.

⁶⁷ Black carbon plays a surprisingly large role in global and regional warming. It is estimated that small, solid particles of black carbon are responsible for about one-fifth of warming globally and,

traditional forms of energy for socio-economic development and the environment have been well illustrated with reference to the use of traditional biomass for cooking, lighting and heating. These consequences must, however, be used as the starting point for arguing for solutions to the challenges faced.

In terms of mitigating some of the detrimental effects connected with the traditional use of biomass, most solutions depend upon improving the efficiency of the biomass technology used – in other words, promoting the modern use of biomass by means of improved stoves and ventilation⁶⁸ as well as lighting.⁶⁹ These proposed solutions will undoubtedly prove invaluable in moving towards a more sustainable use of biomass as an energy source, but they do not address the major energy challenge facing the African continent, namely that of the lack of access to modern energy.

2.2.3 *Lack of access to modern energy*

2.2.3.1 Defining energy access

To date, no consensus exists in the global development community regarding a precise definition of the concept of access to energy. This is mainly due to the fact

as such, are the second-largest contributor to climate change, after carbon dioxide. See Luoma JR "World's Pall of Black Carbon Can Be Eased with New Stoves" 2010 *Yale Environment* 360.

⁶⁸ Efficiency in the use of biomass for cooking can be improved by providing improved stoves and enhanced ventilation. Adding chimneys to stoves with low combustion efficiency can itself be a useful improvement – as long as the chimney is kept clean and maintained. However, often there is some leakage into the room and the smoke is merely vented outside the house, which shows little progress in terms of curbing emissions. Coupled with this, ventilation of the stove can also contribute to minimising the adverse effects of indoor pollution. It must, however, be kept in mind that in order for ventilation to have a tangible effect on the levels of indoor pollution, the stove requires assisted airflow by use of a fan – the mere ventilation of the house by means of windows and doors will have little effect, if any. See IEA World Energy Outlook 2010 13.

⁶⁹ Lighting in LDC households in SSA looks to be the hardest rural energy challenge to overcome. Candles and kerosene/diesel lamps are the most common sources of lighting in rural households but the use of these sources of lighting is linked with adverse effects such as contributing to black carbon emissions, increasing the risk of fire, injury, and poisoning, as well as being linked with health risks such as cancer and tuberculosis. There is no way of improving the efficiency of these light sources and the proposed solution should therefore be to switch to modern energy, in the form of electricity and promoting the use of compact fluorescent light bulbs. See IEA World Energy Outlook 2010 13.

that different levels of development inevitably lead to distinct energy needs and, moreover, different levels of access. It is important to consider the incremental levels of energy access and the benefits connected with each as a starting point in proposing to formulate a definition of energy access. In terms of the AGECC, there are three levels of access to energy, namely energy for basic human needs,⁷⁰ energy for productive uses,⁷¹ and energy for modern society needs.⁷² The AGECC defines universal energy access as "access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses". In practice, achieving universal access to modern energy services by this definition will entail providing affordable access to a combination of energy services that can be classified as: (a) electricity for lighting, health, education, communication services and modern fuels and technologies for cooking and heating; (b) electricity to improve productivity in the fields of agriculture, commercial uses and transport; and (c) modern energy services for individual uses which include powering domestic appliances and private transportation.⁷³ These activities should be undertaken with the aim of promoting economic development and growth and the energy services implemented need to be put to productive uses that positively affect livelihoods; in other words, that promote sustainable development.

2.3 Lack of access to modern energy and the non-promotion of sustainable development

⁷⁰ "Energy for basic human needs" refers to electricity for lighting, health, education, communication and community services. It is estimated that each person should have access to 50 – 100 kWh per year. Another component of this level of energy access is that each energy user should have access to 50 – 100 kg equivalent of modern fuels and technologies for cooking and heating per year (this is roughly equivalent to 600 – 1200 kWh). See Bazilian and Nussbaumer "UNIDO Contribution" 2010 5; AGECC 2010 13; IEA World Energy Outlook 2009 12; and IEA World Energy Outlook 2010 13.

⁷¹ "Energy for productive uses" refers to electricity, modern fuels and other energy services to improve productivity in the fields of agriculture (pumping water for irrigation, fertilizer and mechanised tilling); commercial uses (agricultural processing); and transport (fuel). See Bazilian and Nussbaumer "UNIDO Contribution" 2010 5; AGECC 2010 14; IEA World Energy Outlook 2009 12; and IEA World Energy Outlook 2010 13.

⁷² "Energy for modern society needs" refers to modern energy services for domestic appliances, and increased requirements for cooling and heating and private transportation. At this level of access, electricity usage jumps to around 2000 kWh per person per year. See AGECC 2010 13.

⁷³ Bazilia and Nussbaumer "UNIDO Contribution" 5.

Universal access to modern energy⁷⁴ services, though not specifically given as an MDG, is as fundamental to the promotion of socio-economic development as it is to mitigating the effect of a lack of access to modern energy.⁷⁵ Efforts to improve access to electricity and modern energy as a means to reach economic development date back at least to the 1950s. The UN articulated the supply of electricity as a means of achieving “development first”, since it improved the economic status of populations living in rural areas by increasing human productivity and welfare.⁷⁶ Access to these modern energy services must be reliable and affordable,⁷⁷ sustainable, and, where feasible, from low greenhouse gas (GHG) emitting energy sources in order to address many of the current global development challenges closely related to the MDGs. These challenges are well-known and range across the economic, social and environmental spheres and include poverty, gender inequality, climate change, food security, health and education.⁷⁸ This sentiment regarding the important role which modern energy plays in promoting sustainable development is echoed by the provisions of the *Johannesburg Plan of Implementation on the World Summit on Sustainable Development* (JPOI). In terms of the provisions of the JPOI, joint action must be taken to improve access to reliable and affordable energy

⁷⁴ “Access to modern energy services” should be understood as household access to electricity and clean cooking facilities. See IEA World Energy Outlook 2010 8.

⁷⁵ The impacts related to the lack of access to modern energy cut across the social, economic and environmental spheres and are especially challenging to LDCs. The social impacts related to low or non-existent levels of access to modern energy relate to issues such as gender inequality, healthcare, education and over-all poverty alleviation. With reference to the economic impacts, the ability of low income communities or LDCs to make productive use of their natural resources, time and human energy is severely hampered by the lack of mechanical power. At the environmental front, the most prominent challenge related to the situation of lack of access to modern energy is the exacerbating effects it has on the challenges related to global climate change. In this regard, access to modern energy services is important, but so is access to climate-friendly or low emissions technologies. The environmental benefits connected with the increased access to modern, climate-friendly energy will be discussed in Chapter 4. For an overview of these and other developmental impacts related to the lack of access to modern energy see Bazilian and Nussbaumer “UNIDO Contribution” 2010 3 – 4.

⁷⁶ Sovacool 2012 *Energy for Sustainable Development* 275.

⁷⁷ “Affordable” in this context means that the cost to end users is compatible with their income levels and no higher than the cost of traditional fuels, in other words, what they would be willing and able to pay for the increased quality of energy supply in the long run. See AGECC 2010 9.

⁷⁸ Bazilian and Nussbaumer “UNIDO Contribution” 2010 1; and AGECC 2010 9.

services for sustainable development sufficient to facilitate the achievement of the MDGs.⁷⁹

2.3.1 *Energy access in Africa*

The numbers related to universal household access to energy are striking. It is estimated that 1.4 billion people, which equates to more than 20% of the global population, lack access to modern energy such as electricity, and this problem will persist and even deepen in the long term with 1.2 billion people still lacking access in 2030, globally.⁸⁰ The greatest challenge lies in SSA, where it is estimated that currently, 585 million people do not have access to electricity. This number translates into only 31% of the population enjoying access to electricity – the lowest levels in the world, and if the Republic of South Africa (RSA) is excluded, the share declines to a mere 28%.⁸¹ It is apparent that the single greatest energy challenge facing SSA is the lack of access to modern energy sources, a situation which can be directly linked to the high levels of poverty, the low levels of development, and the non-achievement of the MDGs.

The highest concentration of people suffering the developmental challenges connected with a lack of access to modern energy sources is situated in the LDCs of SSA. It is a well-established fact that there is a close correlation between income levels and access to modern energy. Not surprisingly, countries or regions with a large proportion of the population living on an income of less than \$2 per day tend to

⁷⁹ Paragraph 9 of JPOI.

⁸⁰ The projected figures for 2030 and beyond are based on the IEA World Energy Outlook 2010 New Policies Scenarios. This Scenario takes account of broad policy commitments that had already been announced (but not implemented) by mid-2010. If the Current Policies Scenario, which takes into consideration only those policies and measures that had been formally adopted by mid-2010, is applied to the current energy access situation, the projection is that the number will increase to 1.5 billion people lacking access to modern energy by 2030. UN Energy 2005 2.

⁸¹ It is both interesting and shocking to note that the residential electricity in SSA, excluding SA, is roughly equivalent to electricity consumption in New York. In other words, the 19.5million inhabitants of New York consume in a year roughly the same quantity of electricity, 40 TWh, as the 791 million people living in SSA. If the figure is broken down further, each person in New York consumes 2 050 kWh of electricity per year, while each person in SSA consume a mere 52 kWh per year. See IEA World Energy Outlook 2010 11.

have low electrification rates coupled and a high proportion of the population relies on traditional biomass.⁸² As income increases, access to electricity rises at a faster rate than access to modern cooking fuels, largely because governments give higher priority to electrification. The link between extreme poverty levels and low levels of access to modern energy is evident and it is therefore possible to draw a link between the achievement of the MDGs, which are designed to eradicate extreme poverty, and improved access to modern energy.

Energy poverty, which includes both a lack of access to modern energy and a dependence on traditional biomass as a primary energy source, is an impediment to the promotion of sustainable development and the achievement of the MDGs. Improving upon the current levels of access to modern energy services in SSA should therefore enjoy high priority in any national and/or regional activities related to the promotion of the sustainable development of the continent and the over-all achievement of the MDGs. The crucial importance of access to modern energy services as a factor contributing to the promotion of sustainable development by means of achieving the eight MDGs becomes apparent when one analyses the positive effect of access to modern energy on the achievement of the MDGs collectively and individually. Modern energy's links with other sectors/aspects of "human endeavour" are crucial, considering that increased access to modern energy is central to the promotion of the social, environmental and economic dimensions of sustainable development. Other sectors positively impacted upon by increased access to modern energy include access to water, agricultural and industrial productivity, health care, educational attainment, job creation and mitigating environmental challenges such as climate change.⁸³ This being the case, access to modern energy services should be considered an essential means to promote overall sustainable development rather than an end in itself. Phrased differently, a direct link exists between sustainable development, the achievement of the MDGs, and the level of modern energy access.⁸⁴ Most economic activity is not possible

⁸² IEA World Energy Outlook 2010 12.

⁸³ UN Energy 2005 4.

⁸⁴ World Bank 2000 12
www.worldbank.org/INTENERGY/Publications/20269216/energybrochure.pdf [date of use 27 September 2011].

without energy, and no country or region in modern times has substantially reduced poverty without massively increasing its use of energy. Economic growth creates jobs and raises incomes. This is reflected by the correlation between commercial energy consumption rates and national income, whereby countries with higher incomes are also those with higher energy consumption. In order to clearly define the link between increased access to modern energy and the effect it would have on promoting sustainable development, an analysis of the correlation between the positive impacts of modern energy access on each individual MDG should prove insightful. In short, the following paragraphs should indicate the extent to which access to modern energy is essential to the realisation of the MDGs in Africa.

2.4 *Increased energy access in Africa and the achievement of the MDGs*

Closely related to the objective of the promotion of the sustainable development of the African continent is that of the achievement of the MDGs. This is evident in the text of the Millennium Declaration, which refers explicitly to the urgent action needed in order to address the “special needs of Africans” as well as the fact that sustainable development is a legal imperative of the MDG normative framework.

In order to address the special needs of Africans, the UN resolves to provide support to the necessary political and institutional structures. To this extent the UN, in collaboration with a host of international and regional organisations,⁸⁵ convened the MDG Africa Steering Group (Steering Group) in 2007. The main objective of the Steering Group is to identify the practical steps needed to achieve the MDGs and other internationally agreed development goals in Africa.⁸⁶ The Steering Group recognises that the African continent as a whole is lagging behind on each MDG despite an encouraging rise in the rate of economic growth and an overall

⁸⁵ These include the AU Commission, the African Development Bank, the Organisation for Economic Cooperation and Development (OECD), the World Bank, the Islamic Development Bank, the International Monetary Fund and the European Commission.

⁸⁶ For an overview of the activities and objectives of the MDG Africa Steering Group see www.mdgafrica.org [date of use 12 September 2012].

improvement in national and regional development policy.⁸⁷ Special mention is made of the important role of cooperation among African governments and regional bodies such as the NEPAD in facilitating further success in meeting each MDG at the regional level. The Steering Group identifies a list of concrete opportunities to implement and scale up interventions in support of the MDGs⁸⁸ and specifically refers to the importance of investments in infrastructure investment key sectors, including energy, as identified by NEPAD.

At the AU level, NEPAD embodies the position of African political leaders on the topic of promoting the sustainable development of member states individually and the region as a collective entity by means of achieving the MDGs. The success of NEPAD hinges upon intense regional cooperation on the formulation and implementation of regional development policy and programmes. In terms of the Economic and Corporate Governance Initiative, NEPAD identifies energy as a critically important role player in the development process and lists a range of objectives and actions to be undertaken at the regional level.⁸⁹ Especially relevant are the objectives related to increasing access to reliable and affordable commercial energy from 10% to 35% over twenty years and mitigating the environmental degradation associated with the use of traditional fuels.⁹⁰ One should be able to deduce that while increased energy access is not mentioned explicitly as an MDG, the important role it will play in facilitating the achievement of the Goals and the subsequent promotion of sustainable development in Africa is undeniable. This statement is echoed by the provisions of the Millennium Project's action plan for achieving the MDGs - aptly named A Practical Plan to Achieve the MDGs.

⁸⁷ This is the case as economic growth is not the overall indicator of human development and the overall improvement of the livelihoods of Africans. The overall developmental picture of the African continent in many instances obscures successes at the national level. Due to the institution of carefully designed programmes and sound policies backed by strong government leadership and effective support from the international community, many African countries are set to achieve all of the MDGs with the exception of reducing maternal mortality within the time-frame set by the Millennium Declaration. See MDG Africa Steering Group 2008 3.

⁸⁸ For an overview of these objectives and their related MDGs see MDG Africa Steering Group 2008 4.

⁸⁹ Paragraphs 112 and 113 of NEPAD.

⁹⁰ Paragraph 112 of NEPAD.

2.4.1 *Eradicating extreme poverty and hunger*

In terms of eradicating extreme poverty and hunger, access to modern energy will play a role in facilitating economic development by providing more efficient and healthier means to undertake basic household tasks such as cooking and lighting, and will also power productive activities more generally.⁹¹ Access to modern fuels and electricity will help in promoting the achievement of extreme poverty reduction and hunger by increasing household incomes through economic development and reducing the burden of time-consuming domestic labour.⁹² Eradicating extreme hunger requires much greater access to modern fuels and stoves to cook food and access to modern irrigation technologies, which is dependent on electricity, in order to improve agricultural output. Increased access to modern energy services will furthermore greatly enhance food security, increase labour productivity and create employment.⁹³

Drafted at the World Summit on Sustainable Development (WSSD) in 2002, the JPOI (while legally non-binding) affirmed sustainable development as a concept integrating the social, environmental and economic dimensions of development and furthermore identified extreme poverty as the greatest challenge to promoting subsequent development. The JPOI expressly states that access to modern energy will play a crucial role in contributing towards poverty eradication by means of promoting sustainable development and the achievement of the MDGs, including the goal of halving the proportion of people in poverty by 2015.⁹⁴ In order to achieve the first MDG, the JPOI provides that improved access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services

⁹¹ With regard to cooking and lighting, the focus should fall on using modern energy sources, such as electric lamps instead of candles and batteries. With reference to productive activities, modern energy can power the pumping of water, can provide clean, safe drinking water, and can increase agricultural yields through the use of machinery and irrigation. See IEA World Energy Outlook 2010 15; and UN Energy 2005 4.

⁹² UN Energy 2005 6.

⁹³ An electricity supply enables poor households to engage in activities that generate income – by providing lighting that extends the workday and by powering machines that increase output. An electricity supply can increase domestic incomes by providing telecommunications that help farmers and industrial workers order inputs, market products, and keep track of prices for both. UN Energy 2005 6.

⁹⁴ Paragraph 9 of the JPOI.

and resources is essential.⁹⁵ Actions towards improving access to energy must take place with due attention paid to national specificities and circumstances and through various means including enhanced rural electrification.⁹⁶ The JPOI further acknowledges the importance of drafting national energy policies and regulatory frameworks capable of creating the necessary economic, social and institutional conditions to improve access to energy capable of promoting sustainable development.⁹⁷ It also states the importance of regional and international cooperation in improving access to energy, as an integral part of poverty reduction programmes.⁹⁸ The provisions of the JPOI relating to the role of energy access in eradicating poverty are relevant to the current study for a number of reasons. In the first instance, the JPOI clearly indicates the direct link between the achievement of the MDGs and the promotion of sustainable development. Secondly, it establishes access to electricity (as a modern energy source) as one of the possible means to address extreme poverty (which includes energy poverty). Third, and this is the interpretation of the author, the JPOI lists the criteria for sustainable energy services/sources. To qualify as an energy source capable of facilitating the promotion of sustainable development, it must be reliable, affordable, economically viable, socially acceptable and environmentally sound.⁹⁹ In the final instance, the JPOI recognises that a sharp increase in energy services is needed in developing countries in order to improve the standard of living.¹⁰⁰

⁹⁵ Paragraph 9(a) of the JPOI.

⁹⁶ Other means include: decentralized energy systems, increased use of renewables, cleaner liquid and gaseous fuels and enhanced energy efficiency. Paragraph 9(a)(b) and (c) of the JPOI.

⁹⁷ Paragraph 9(e) of the JPOI.

⁹⁸ Paragraph 9(f) of the JPOI. The provisions of the JPOI pertaining to regional cooperation will be touched upon in paragraph 2.8 below.

⁹⁹ See note 94 above.

¹⁰⁰ Paragraph 9(g) of the JPOI.

2.4.2 Achieving universal primary education

With reference to the second MDG, which is that of achieving universal primary education, access to modern energy will once again play a pivotal role in promoting its achievement. Many of the tasks related to the gathering and preparation of traditional sources of biomass used as primary household energy source are generally performed by women and children in the rural communities of most LDCs. Access to modern fuels and electricity lessen these burdens suffered by women and children and subsequently frees time for education – time that would otherwise have been spent on activities such as collecting traditional fuels and fetching water.¹⁰¹ Access to electricity is also important for education as it facilitates communication, particularly through information technology, as well as providing for sufficient lighting in schools.¹⁰² Other ways in which access to electricity would promote the achievement of the goal of global education include the fact that electric lighting in homes enables both adults and children to study after their daytime activities, thereby increasing the likelihood of women attaining basic education to start with, and children attending schools regardless of their family income.¹⁰³

2.4.3 Promoting gender equality

The third MDG is related to promoting gender equality. Increasing access to modern energy brings major benefits for women and girls – in health, education and productive activities. Modern cooking fuels free women from the physical stresses of carrying large loads of fuel wood and from exposure to debilitating fumes emanated by traditional cooking stoves, as well as the detrimental health effects associated with them. Access to modern fuels and electricity frees up valuable time, especially for women, widening their employment opportunities, while lighting and motive power

¹⁰¹ UN Energy 2005 6.

¹⁰² IEA World Energy Outlook 2010 15.

¹⁰³ UN Energy 2005 7.

enable women to develop productive activities that increase their income.¹⁰⁴ Electricity would furthermore contribute to the safety of women and girls, as having street lights would allow for women and girls to attend night schools and participate in community activities.¹⁰⁵

2.4.4 Reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases

Achieving the MDGs of reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases is dependent on access to modern energy albeit, in different ways. If households are able to switch from stoves that rely on the combustion of traditional sources of biomass to modern appliances that burn kerosene, LPG or modern biomass fuels, the poor can avoid emissions that cause respiratory ailments connected with indoor air pollution.¹⁰⁶ By powering equipment for pumping and treating water, modern fuels and electricity contribute to a clean water supply which reduces the incidence of waterborne diseases. Furthermore, providing heat via modern energy to boil water will also aid in reducing these waterborne diseases, which are among the leading causes for the high child mortality rates in SSA.¹⁰⁷ Another factor closely related to child mortality is malnutrition. Using electricity and other modern fuels in order to boost agricultural production and household incomes will undoubtedly have a mitigating effect on the effects of malnutrition. Modern fuels and electricity also contribute towards improving health indirectly in the sense that these sources of modern energy enable the effective functioning of health clinics and hospitals.¹⁰⁸ By creating productive

¹⁰⁴ UN Energy 2005 7.

¹⁰⁵ OECD/IEA 2010 15.

¹⁰⁶ Respiratory ailments are the fourth leading health risk in developing countries. UN Energy 2005 7.

¹⁰⁷ In the LDCs waterborne disease caused by the lack of access to clean, safe drinking water and basic sanitation causes the death of 4 500 children under the age of five, daily. The rates in SSA are the highest and it is shocking to note that an infant born in SSA is 520 times more likely to die from diarrhoea than a child born in Europe. See www.unicef.org/wash/index_31600.html [date of use 27 September 2011].

¹⁰⁸ Electricity will enable health clinics to refrigerate vaccines, operate and sterilize medical equipment, and provide lighting so that clinical services can be provided after sunset. Electricity also provides for the use of modern tools of mass communication needed to fight the spread of

opportunities in homes and businesses that raise income, electricity improves peoples' health through improving their standards of living and their disposable income.

Reducing the unsustainable, traditional use of biomass and increasing access to modern energy sources will undoubtedly have the effect of promoting the achievement of the MDG and ensuring environmental sustainability.¹⁰⁹ Energy use and production, however, affect local, regional and global environments. The use of wood and charcoal as fuel in households and industries can be labelled as unsustainable when it leads to land degradation from the gathering of wood and to indoor air pollution from burning the wood. Likewise, the combustion of fossil fuels can lead to outdoor air pollution, acidification of land and water, and emissions of GHGs. In all of these instances, the environmental damage and its harmful effects can be reduced by increasing energy efficiency, introducing modern technologies for energy production and use, substituting cleaner fuels for polluting fuels, and introducing renewable energy.¹¹⁰

2.4.5 Developing global partnerships for development

The final MDG calls for the development of a global partnership for development. In this regard the WSSD calls for partnerships between public entities, development agencies, civil society and the private sector on topics related to and in support of sustainable development. These topics include the delivery of affordable, reliable and environmentally sustainable energy sources.¹¹¹ In order to provide for the achievement of establishing a global partnership for development, international

HIV/AIDS and other preventable diseases. IEA World Energy Outlook 2010 15; UN Energy 2005 7.

¹⁰⁹ Modern cooking fuels and more efficient cookstoves can relieve pressures on the environment caused by the traditional use of biomass. The promotion of low-carbon renewable energy is congruent with the protection of the environment locally and globally, whereas the unsustainable exploitation of fuelwood causes local deforestation, soil degradation and erosion. Increasing the use of modern, cleaner energy has also been shown to contribute positively to the global GHG emissions and global warming agenda. IEA World Energy Outlook 2010 15.

¹¹⁰ UN Energy 2005 8.

¹¹¹ UN Energy 2005 18.

cooperation in the form of information and technology sharing will be necessary. Referring to the importance of international cooperation in developing global partnerships for development, the Millennium Declaration makes specific mention of the importance of burden-sharing.¹¹² The 2013 Report of the UN Secretary-General¹¹³ reiterates the credo of "shared burden, shared gain" as the basis for international action for collective well-being.¹¹⁴ Burden sharing in the context of achieving the MDGs relates primarily to direct financial investment, while other forms of burden sharing include emergency and humanitarian assistance, outlays for science and technology, enhanced debt relief, increased technical capacity of bilateral and multilateral agencies, and other categories of official development assistance.¹¹⁵ Burden sharing is crucial in ensuring the promotion of sustainable development by means of the MDGs on a global scale. The need is nowhere more pronounced than in low-income countries such as African LDCs. According to estimates, the total donor cost of supporting the MDG financing gap for every low-income and middle-income country will average \$135 billion in 2015.¹¹⁶ Despite the pronounced need for burden sharing and the positive impacts it is set to have on the achievement of the MDGs, efforts in establishing global partnerships for development have so far been far from successful. Following an encouraging rise in official development assistance since 2000, aid flows have declined between 2011 and 2013. Despite the granting of significant debt relief for many countries, the debt-servicing burden of some low-income countries remains intolerably high.¹¹⁷ Burden sharing is especially crucial in facilitating science and technology development in developing and under-developed countries.¹¹⁸ Efforts should focus on research and development towards specific science and technology challenges facing the poor, which include, among others, energy development. In this regard the UN

¹¹² Paragraphs 6 and 26 of the Millennium Declaration.

¹¹³ *A life of dignity for all: accelerating progress towards the Millennium Development Goals and advancing the UN development agenda beyond 2015* A/68/202 Report submitted pursuant to General Assembly resolution 65/1.

¹¹⁴ Paragraph 3 of A/68/202

¹¹⁵ Sachs and McArthur 2005 www.image.thelancet.com/extras/04art12121web.pdf [date of use 27 September 2011].

¹¹⁶ Sachs and McArthur 2005 www.image.thelancet.com/extras/04art12121web.pdf [date of use 27 September 2011].

¹¹⁷ UN DESA *The Global Partnership for Development: The Challenge We Face* MDG Gap Task Force Report 2013.

¹¹⁸ Developing countries tend to lack large scientific and technological communities. Their scientists and engineers, chronically underfunded, emigrate to find satisfying employment in scientific research and development. Moreover, private companies focus their innovation activities on the problems and projects of high-income countries where good financial returns are likely. See

Sustainable Energy for All Initiative (UNSEI) established in 2011 to mobilise international efforts towards stimulating energy development in developing nations has secured in excess of \$50 billion.¹¹⁹

The positive impacts increased access to modern energy services would have on the overall development of the African continent have been established. It is evident that increased access to modern energy services in African would undoubtedly have the effect of mitigating the adverse impacts of energy poverty and in turn lead to the promotion of the sustainable development of the region by means of the achievement of the MDGs.

2.5 *Increasing access to modern energy services in Africa*

A discussion of energy poverty and its related challenges has served to highlight the important role increased access to modern energy would play in mitigating the negative impacts of energy poverty on the promotion of sustainable development. Increased access to modern energy services would promote sustainable development by means of impacting positively on the achievement of the MDGs. At the international level, the objective of increasing access to modern energy services features strongly as a basis for global efforts to promote the achievement of the MDGs and the promotion of sustainable development. In terms of its UMEAC, the IEA concludes that in order for the situation surrounding energy access to be considered as being on course for achieving the eradication of poverty by 2015, two distinct requirements must be met. These are that no more than one billion people be without access to electricity and no more than 1.7 billion people be reliant on the traditional use of biomass as their primary energy source.¹²⁰ With specific reference to modern energy access, the objective set by the UNSEI of achieving global sustainable energy access by 2030 echoes the provisions of the UMEAC. In order

¹¹⁹ <http://www.sustainableenergyforall.org>. [date of use 27 September 2011].

¹²⁰ IEA World Energy Outlook 2010 16.

to achieve its modern energy access target by 2015, the UMEAC estimates that 395 million people need to be provided with electricity.¹²¹

Most African LDCs face low and stagnant growth in their levels of access to modern fuels and electricity. The major challenges faced by these countries regarding such access include increasing access to energy services for the poor as a means of supporting overall development; enhancing the environmental performance of energy supply and consumption; mobilising financial resources to expand energy investment; linking energy planning to goals and priorities in other sectors; and sustaining political commitment to sound energy-sector management and governance.¹²² These challenges should form the foundation of the AU modern energy access agenda and should be used as indicators for establishing policy geared towards regulating improved access to modern energy in Africa. The challenges pertaining to the lack of access to modern energy services in Africa will be described in order to make it possible to propose solutions to them. These solutions should be contained in the AU's strategic development plan for improving modern energy services in member states individually and the continent as a collective entity.¹²³ The challenges faced by African law and policy makers will be discussed below.

¹²¹ Over and above the figures related to modern energy access, an additional 1 billion people need to be provided with clean cooking facilities. IEA World Energy Outlook 2010 16.

¹²² UN Energy 2005 8 – 9.

¹²³ While increasing access to electricity and the provision of cleaner cooking fuels are equally important as solutions to energy poverty in Africa, the focus of this research will fall mainly on access to electricity. Various options for supplying this electricity need to be considered, including on-grid, mini-grid and isolated off-grid connections. Consumer density will be the key variable when deciding upon the most efficient grid connection. In other words, in densely populated areas extending an existing grid will be much cheaper than using mini-grid or off-grid connections. In scarcely populated rural areas grid connections would prove to be too expensive and decentralised electricity solutions would play an important role. IEA World Energy Outlook 2010 19, 23.

2.6 Challenges for increasing energy access in Africa and other developing regions

Developing countries and especially LDCs face major challenges with regards to improving the performance of their energy suppliers in ways that benefit energy users – this is especially true of Africa, considering the low levels of development prevalent throughout the region. These challenges have social, economic, financial, institutional and environmental dimensions, and in least developed regions such as parts of the African continent they relate to low and/or stagnant levels of growth with regard to access to modern fuels and electricity.¹²⁴ These challenges should be seen as the point of departure for AU policy makers to propose solutions in the form of coordinated regional legal instruments geared towards addressing energy poverty and specifically the lack of access to energy services as a component of energy poverty.

2.6.1 Challenge 1: Widening access to modern energy services for the poor

While it is obvious that increased access is vital to effectively addressing the challenge of the lack of access to modern energy sources, a variety of challenges specifically related to least developed regions pose a difficulty. In the first instance, with reference to modern energy expansion, LDCs and developing regions suffer formidable institutional and regulatory barriers resulting in energy companies not delivering electricity to the poor. Many lack comprehensive energy strategies or have strategies which do not prioritise access by the poor. The main reasons behind such a state of affairs are inefficient public utilities and private sector companies that

¹²⁴ *The Energy Challenge for Achieving the Millennium Development Goals* UN-Energy Paper 22 2005 8 available at http://www.unhabitat.org/downloads/docs/920_88725_The%20Energy%20challenge%20for%20achieving%20the%20millenium%20development%20goals.pdf. [date of use 27 September 2011].

see no incentive in serving the poor.¹²⁵ The primary solution to this challenge lies in establishing country/region-specific, efficient modern energy policies geared towards the provision of modern energy services to the poor by means of well-run service companies.

With regard to the envisaged policy solutions, one must keep in mind that just as the energy challenges and needs in rural and urban areas differ, so too should the energy policies for the rural and urban areas differ. In terms of the rural energy policy, the focus must fall on increasing the efficiency of biomass fuel use and promoting the use of modern fuels;¹²⁶ increasing access to efficient stoves for both biomass and modern fuels;¹²⁷ subsidising capital costs for grid electrification and developing off-grid solutions for providing energy services;¹²⁸ and targeting subsidies focused on energy access rather than energy consumption.¹²⁹ Policy solutions aimed at increasing modern energy access in urban areas should include removing market barriers to trade in kerosene, LPG, biomass fuels and charcoal for meeting the cooking needs of the poor, especially the barriers to entry by new service providers, in order to boost competitive prices and service quality. Another important policy solution would be to provide supportive regulatory policies for meeting the need for energy services other than cooking, in particular to make expansion of access to electricity by poor households financially sustainable.¹³⁰ Supportive regulatory policies are policy and regulatory instruments which include and reflect all relevant intermediations needed in order to provide for sustainable energy access

¹²⁵ *The Energy Challenge for Achieving the Millennium Development Goals* UN-Energy Paper 22 2005 9 available at http://www.unhabitat.org/downloads/docs/920_88725_The%20Energy%20challenge%20for%20achieving%20the%20millenium%20development%20goals.pdf [date of use 27 September 2011].

¹²⁶ Modern fuels include kerosene and LPG as primary energy sources for domestic cooking and lighting needs.

¹²⁷ This should take place in accordance with the availability and affordability of fuel in order to save resources, reduce pollution, increase food availability and improve over-all health.

¹²⁸ Subsidising the initial cost is necessary as the levels of demand for electricity for services such as lighting, refrigeration, information and telecommunication in rural SSA is so low that recovering the cost for electrification from the poor would raise tariffs to unaffordable levels.

¹²⁹ Put differently, it would be productive to find other ways of lowering the one-off fixed cost associated with energy use such as stoves rather than the recurring costs of fuels and electricity.

¹³⁰ Relatively little investment in strengthening the infrastructure already in place is needed for this purpose, except for some capital expenditure for extending the power grid to new peri-urban areas occupied by the poor. Unfortunately, even with the lower capital costs and higher incomes in urban areas, many urban poor often cannot afford the connection fees or monthly charges for electricity. UN Energy 2005 9 – 10.

and are inclusive of existing development initiatives. In its 2009 report the IEA cites “sound statistical data...and a clear description of the [energy services] situation” as the first of the preconditions for successful energy access policies.¹³¹ Supportive regulatory policies should be seen to exist within comprehensive energy systems planning and should include and consider all possible energy supply and demand options and be consistent with broader regional and national goals.¹³² Included amongst these broader goals is the promotion of sustainable development, and the inference is therefore drawn that regional energy access policies must consider and reflect existing regional initiatives aimed at achieving that goal. The formulation and implementation of supportive regional regulatory policies presupposes regional cooperation. Regional cooperation will, however, result in truly coordinated energy access policies only if it is based upon consensually agreed-upon targets and mechanisms as contained in national energy access policies.¹³³ Targets contained in other regional and/or sub-regional energy access strategies are also extremely relevant in providing a common target for AU policy-makers. In this regard the EAC Strategy lists various targets pertaining to different populations. These targets will be elaborated upon in subsequent sections pertaining to regional energy access initiatives, but of importance at this juncture is to recognise the important role existing energy access targets should play in effecting supportive regional regulatory policies. Other general policy solutions aimed at increased modern energy access include emphasising low-cost services for meeting the poor’s energy needs,¹³⁴ removing obstacles to inter-fuel substitution,¹³⁵ and removing obstacles to the efficient functioning of energy markets.¹³⁶

¹³¹ International Energy Agency Report 2009 10 and Bazilian ea 2010 4.

¹³² Bazillian M, Nussbaumer P, Rogner HH, Brew-Hammond A, Foster V, Pachauri S, Williams E, Howells M, Niyongabo P, Musaba L, O’Gallachoir B, Radka M and Kammen DM “Energy access scenarios to 2030 for the power sector in sub-Saharan Africa” 2012 *Utilities Policy* 20 2.

¹³³ Bazilian ea 2010 7, *UN Development Programme Report*, 2009, and *WHO Report* 2009.

¹³⁴ These policies should support a wide range of technologies including improved cooking stoves, low cost electricity distribution, smaller gas cylinders, and the use of renewable energy as a replacement for kerosene for cooking. The policies should allow some flexibility in regulated service standards, since the levels of service applied to the main energy markets (such as LPG supplied in large consignments, urban standards of electricity service, and high quality stoves) are generally unaffordable to the poor. Special programmes for service delivery can be developed to cater to the needs of the poor, by adopting lower construction and supply reliability standards to reduce the costs of extending access and delivering services to the poor, without compromising safety and environmental standards. UN Energy 2005 10.

¹³⁵ As their income grows, urban households tend to substitute more efficient energy sources, such as electricity for traditional fuels such as wood. Apart from greater efficiency, this inter-fuel substitution can result in important welfare benefits by reducing indoor air pollution and

2.6.2 Challenge 2: Enhancing the environmental performance of energy supply and consumption

Increased access to modern energy sources will play a deciding role in facilitating the promotion of sustainable development throughout the African continent. In order to contribute to the objective of promoting sustainable development, the energy sources which make up the African energy mix need to be environmentally friendly. Policy makers at the AU level must therefore take cognisance of the global environmental challenge of energy-related climate change when formulating energy policy and programmes geared towards increased energy access. The challenge facing AU policy-makers is to increase access to modern energy without exacerbating the impacts of global energy-related climate change.

The way in which energy is produced, distributed and consumed affects the local, regional and global environment in a variety of ways, of which energy-related climate change is the most evident and alarming. While industrialised countries and rapidly developing economies are the largest emitters¹³⁷ of energy-related carbon dioxide (CO₂) and GHGs the impacts of climate change will be most evident in under-developed countries and regions, with strong indications that the poorest populations

alleviating pressure on wood resources in urban areas. Taxes on modern fuels should be avoided if they deter better-off users from switching to modern fuels from traditional fuels. UN Energy 2005 10.

¹³⁶ These reforms include: providing for efficient entry to and exit from these markets for energy suppliers and users, eliminating restrictions or bottlenecks on the import and distribution of modern fuels and electricity, removing market distortions that unfairly favour one supply source over another, and pricing energy to cover the cost of both operations and investments incurred in the delivery of energy services. Regulation of these markets must be established with specific provisions for rural and off-grid areas, various types of private providers of energy services, and the promotion of regional energy production and supply cooperation. The responsibilities related to policy formulation on the one hand and market regulation on the other should be separated at an institutional level. UN Energy 2005 10 – 11.

¹³⁷ In 2011 China surpassed the United States to become the largest emitter of human-related GHG globally, and together the two nations emit about 40% of the global total (with shares of 21% and 19% respectively). See British Petroleum (BP) Statistical Review of World Energy 2011 available at <http://www.bp.com/sectionbodycopy.do?categoryId=7500&contentId=7068481> [date of use 20 September 2013]; and 450 Scenario: International Energy Agency *World Energy Outlook 2011*.

are increasingly vulnerable.¹³⁸ As stated previously, the energy situation in Africa is one characterised by extremely low levels of access to modern energy sources. This situation poses two distinct yet inter-related challenges to regional policy-makers. Firstly, the fact that Africa has one of the lowest total and per capita modern energy consumption rates in the world relates directly to the low levels of development prevalent throughout the region and the ultimate non-achievement of the MDGs.¹³⁹ The region is extremely vulnerable to climate change and estimates are that the region will suffer a wide range of detrimental environmental, social and economic climate-related impacts.

In terms of its 2007 report the Intergovernmental Panel on Climate Change (IPCC) describes the vulnerability of the African continent by listing the various sectors which show specific sensitivity to climate change, which include water, health, agriculture, ecosystems, and human settlements and infrastructure.¹⁴⁰ With reference to future impacts and vulnerabilities to climate change, the increased generation and consumption of modern energy in Africa (specifically electricity) is identified as a factor which shows potential for impacting negatively on climate change. This is due to the fact that increased generation and consumption of modern energy sources should result in higher GHG emissions by the African continent, thereby potentially exacerbating the detrimental effects of climate change on climate sensitive factors.¹⁴¹ Naturally, this hypothesis is true only if future modern energy is generated using methods which are detrimental to the global climate change agenda. In terms of contributing towards global energy-related climate change, Africa's low average and per capita modern energy consumption rates have the effect of the continent's emitting very little CO₂ and other GHGs.¹⁴² This does not, however, translate into Africa's being spared the adverse effects related to energy-related climate change – indeed the opposite is true. The impacts generally foreseen include but are not restricted to reduced agricultural production, reduced

¹³⁸ Modi ea 2005 28.

¹³⁹ Nkomo JC 2007 "Energy use, poverty and development in the SADC" *Journal of Energy in Southern Africa* 18(3), 10 – 17.

¹⁴⁰ Chapter 9 *IPCC Fourth Assessment Report 2007: Climate Change* 436 – 440.

¹⁴¹ Chapter 9 *IPCC Fourth Assessment Report 2007: Climate Change* 446.

¹⁴² Modi ea 2005 30.

fresh water availability, loss of biodiversity, increased food insecurity, increased health problems and increased migration.¹⁴³ The impacts related to energy-related climate change range across the economic, environmental and social spheres and will certainly have the over-all impact of hampering the promotion of sustainable development and the achievement of the MDGs. This is stated as fact by the IPCC, which stresses the importance of recognising the link between the detrimental impacts of climate change on the achievement of the MDGs and consequently the promotion of sustainable development.¹⁴⁴

This brings us to the second challenge related to the African energy situation, namely the need to increase energy access without exacerbating the impacts of energy-related climate change on the sustainable development of the continent. In order to adapt to the environmental challenges posed by energy-related climate change it is evident that African policy-makers need to integrate climate issues into regional policy related to increased modern energy access. Focusing on the topic of climate change adaptation, attention will accordingly be paid to the provisions of the *United Nations Framework Convention on Climate Change*, 1992 (UNFCCC)¹⁴⁵ and the *Kyoto Protocol*, 1997 (Kyoto Protocol).

The objective of the UNFCCC is to stabilise greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic interference with the climate system." This objective relates to mitigating climate change. Furthermore, "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to

¹⁴³ Seventh African Development Forum – Acting on Climate Change for Sustainable Development Climate Change and Sustainable Development in Africa: An Overview (10 – 15 October, Addis Ababa, Ethiopia) 10.

¹⁴⁴ Chapter 9 *IPCC Fourth Assessment Report 2007: Climate Change* 447.

¹⁴⁵ The UN Framework Convention on Climate Change (hereinafter referred to as the UNFCCC or the Convention) entered into force in 1992 and is called the "Rio Convention", one of three adopted at the "Rio Earth Summit" in 1992. Its sister Rio Conventions are the UN Convention on Biological Diversity and the Convention to Combat Desertification. The three are intrinsically linked. It is in this context that the Joint Liaison Group was set up to boost cooperation among the three Conventions, with the ultimate aim of developing synergies in their activities on issues of mutual concern.

enable economic development to proceed in a sustainable manner.”¹⁴⁶ In order to reach this lofty goal, one of the commitments under the Convention is to formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources.¹⁴⁷ According to the text of the UNFCCC, mitigation should take the form of reducing GHG emissions in terms of cooperative action. The level and time-frame of the emission reduction-based climate change mitigation intended by the UNFCCC was to have the so-called Annex I countries¹⁴⁸ reduce their GHG emissions to 1990 levels by the year 2000.¹⁴⁹ While the UNFCCC contains the mandate for the mitigation needed to curb “dangerous anthropogenic interference with the climate system”, the measures needed to achieve the proposed mitigation would be identified by the Kyoto Protocol.¹⁵⁰

Adopted in 1997 and entering into force in 2005, the Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Protocol is that it sets binding targets for 37 industrialised countries and the European Union for reducing GHG emissions by 5% between 1998 and 2012.¹⁵¹ In short, the Kyoto Protocol is what “operationalises” the UNFCCC - it commits industrialised countries to stabilizing greenhouse gas emissions based on the principles of the UNFCCC. The UNFCCC itself only encourages countries to do so. The Kyoto Protocol establishes three market-based mechanisms for reaching mitigation targets, namely emissions trading,¹⁵² the clean development mechanism (CDM),¹⁵³ and joint

¹⁴⁶ See Article 2 of the UNFCCC.

¹⁴⁷ See Article 4(1)(b) of the UNFCCC

¹⁴⁸ The UNFCCC places the onus for reaching GHG emissions squarely upon the shoulders of developed countries. Hence the specific reference to Annex I countries. Annex I countries belong to the Organization for Economic Cooperation and Development (OECD) and include twelve countries with “economies in transition” from Central and Eastern Europe. For a list of the Annex I countries see Annex I of the UNFCCC.

¹⁴⁹ See Article 4(2)(a) of the UNFCCC.

¹⁵⁰ 37 I.L.M 22 (1998).

¹⁵¹ In terms of its provisions, the Protocol states that countries should strive to meet their targets through national measures but also proposes market-based mechanisms of which the CDM is one. These mechanisms propose to stimulate green investment and help Parties meet their emission targets in a cost-effective way. See Article 12 of the Kyoto Protocol.

¹⁵² Emissions trading is also widely referred to as the “carbon market”. See Article 17 of the Kyoto Protocol.

¹⁵³ See Article 12 of the Kyoto Protocol.

implementation.¹⁵⁴ The mechanisms are intended to help stimulate green investment and help parties meet their emission targets in a cost-effective way. The CDM is meant to assist non-Annex I parties (generally developing countries) in achieving sustainable development and in contributing to the ultimate objective of the UNFCCC, which is mitigation. While the Kyoto Protocol lists the CDM as a mitigation measure for developing regions such as Africa, it is not best suited to African needs, especially considering the continent's extremely high climate change vulnerability.

The CDM as defined in the Kyoto Protocol has two objectives, namely sustainable development and reducing GHG emissions.¹⁵⁵ The institutional effort required is likely to be proportional to the size of the task, and the scale of benefits expected. A fundamental issue of equity relating to climate change and Africa is that those least responsible for the problem of global climate change are most vulnerable to its impacts.¹⁵⁶ Mitigation efforts should start with sustainable development, taking into account the current status of African countries. African countries are unlikely to set up large institutional infrastructures for emission reductions alone, given that the volume of emissions to mitigate is comparatively low.¹⁵⁷ These general inequities regarding climate change are reflected in the CDM process as well. Only if sufficient investment is generated will it be worthwhile to invest in setting up an institution primarily for the CDM.¹⁵⁸ Building capacity to attract investment, using existing investment centres and attracting climate-friendly development projects, should be central to Africa's approach. Given limited financial resources, ministries of finance

¹⁵⁴ See Article 6 of the Kyoto Protocol.

¹⁵⁵ Article 12 of the UNFCCC.

¹⁵⁶ IEA (International Energy Agency), 2002. Key World Energy Statistics from the IEA. IEA, Paris, France.

¹⁵⁷ Morera L, Cabeza O and Black-Arbeláez T *The State of Development of National CDM Offices in Central and South America* (OECD, Paris, France 2003).

¹⁵⁸ Both historical experience with foreign direct investment (FDI) in Africa and modelling of the potential size and distribution of CDM projects suggest that relatively little of total CDM investment might flow to Africa. If African countries cannot rely on large flows of investment, a strategy of building on existing institutions is a good approach to managing risk.

are unlikely to approve budgets for new institutions unless there are certain returns.¹⁵⁹

While the UNFCCC does not contain a definition of adaptation, climate change literature is rife with variations on the concept which is commonly referred to as “any actions taken to adjust or respond to the adverse effects of climate change”.¹⁶⁰ Adaptation therefore differs from mitigation, which aims to prevent or limit the occurrence of climate change, in the sense that adaptation focuses on coping with the adverse environmental and social impacts of climate change. The climate change challenges facing Africa are the cause of the additional sources of the vulnerability of the continent.¹⁶¹ These challenges call for adaptive measures in the form of integrating climate concerns into regional development planning in order to ensure the long-term achievement of the MDGs and the promotion of sustainable development.¹⁶² The African climate change strategy¹⁶³ has to do with vulnerability assessment and the development of adaptation strategies.¹⁶⁴ The African climate change strategy’s position on focusing African approaches to climate change adaptation on the continent’s vulnerability to the global environmental challenge is echoed by various international climate instruments. The non-binding¹⁶⁵

¹⁵⁹ Winkler H, Davidson O and Mkwasonda S “Developing institutions for the clean development mechanism: African perspectives” 2005 *Climate Policy* 5 209.

¹⁶⁰ Yamin F “The Kyoto Protocol: Origins, Assessment and Future Challenges” 1998 *Review of European Comparative & International Environmental Law* 7 (2) 113.

¹⁶¹ This is stated in the text of the Copenhagen Accord, 2009 (Draft decision -/CP.15.). The Copenhagen Accord highlights the need for enhanced action and international cooperation on climate change adaptation to ensure the implementation of the UNFCCC. International cooperation must enable and support the implementation of adaptation actions aimed at reducing vulnerability and building resilience in developing countries, especially in those that are particularly vulnerable. Included in the list are LDCs, small island developing states, and Africa. The Copenhagen Accord furthermore states that developed countries must provide adequate, predictable and sustainable financial resources, technology and capacity-building to support the implementation of adaptation action in developing countries.

¹⁶² AU-NEPAD *Action Plan of the Environment Initiative* 2010 - 2015 65.

¹⁶³ The strategy resulted from a series of consultative meetings which culminated in discussion of the strategy at the climate change thematic workshop on the climate change programme area of Action Plan of the Environment Initiative of NEPAD. See AU-NEPAD *Action Plan of the Environment Initiative* 2010 - 2015 65.

¹⁶⁴ The strategy identified the following three steps to be followed in order to increase Africa’s resilience to climate change: the ecosystems, regions and people most vulnerable needed to be identified; adaptation strategies suited to the regions and sectors identified needed to be developed; and pilot projects as well as capacity building support needed to take place. See AU-NEPAD *Action Plan of the Environment Initiative* 2010 - 2015 65.

¹⁶⁵ Due to objections by a group of states (led by Sudan, Venezuela and Bolivia), COP 15 was unable to adopt the accord. Instead the COP took ‘note of’ it. See for a discussion: Rajamani L

Copenhagen Accord¹⁶⁶ recognises the vulnerability of Africa as a geographical region followed by the Cancun Agreements which subsequently affirmed the designation of Africa as one of the vulnerable entities.¹⁶⁷ Approaching climate change through the perspective of vulnerability will facilitate links to sustainable development policy and stimulate adaptation to emerging climate change. In this view, development processes help reduce vulnerability to climate change. By reducing vulnerability, the impacts of climate hazards are also reduced, as there is less sensitivity and exposure to hazards. This translates into a process of adaptation to climate change tailored to the specific needs of the African continent.¹⁶⁸

Closely related hereto are the provisions contained in Decision 1/CP.10 drafted by the Conference of Parties (COP) at the 10th climate change conference held in Buenos Aires in 2004,¹⁶⁹ which called for the UNFCCC secretariat to organise three regional workshops to enable the exchange of information and integrated assessments to assist in identifying specific adaptation needs and concerns.¹⁷⁰ As a result the African Regional Workshop on Adaptation (ARWA) was held in Accra, Ghana in 2006. The workshop aimed at facilitating the exchange of information and

"The Making and Unmaking of the Copenhagen Accord" 2010 *International & Comparative Law Quarterly* 59(3) 824.

¹⁶⁶ Decision 2/CP.15, in Report of the Conference of Parties on its fifteenth session held in Copenhagen from 7 to 19 December 2009, Addendum, Part Two: Action taken by the COP at its fifteenth session, FCCC/CP/2009/11/Add.1 (Mar. 30, 2010), 4 [hereinafter The Copenhagen Accord], available at <http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>

¹⁶⁷ Paragraph 95 of Decision 1/CP.16, "The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention", FCCC/CP/2010/7/Add.1 (Mar. 15, 2011) [hereinafter The Cancun Agreements (LCA)] available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf> and the Preamble of Decision 1/CMP.6, "The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its fifteenth session", FCCC/KP/CMP/2010/12/Add.1 (Mar. 15, 2011). See Scholtz W "African vulnerability: Recognition through a principle in the international climate change regime" 2011 *South African Yearbook of International Law* 1 – 7.

¹⁶⁸ The difference between the responses of developed nations (mitigation) and developing/under-developed nations (adaptation) to climate change speaks to the notion of common but differentiated responsibility, which resonates throughout the text of the UNFCCC. In essence, the UNFCCC balances the commitment of developing nations with those of developed nations and requires that developing nations adapt to climate change by developing in a sustainable manner while developed nations are required to address climate change through mitigation measures. See Rajamani L "The Principle of Common but Differentiated Responsibilities and the Balance of Commitments under the Climate Regime" *Review of European Comparative & International Environmental Law* 2000 9 (2) 125; Rajamani *Differential treatment* 176, Scholtz W "Different states, one environment: A critical southern discourse on the common but differentiated responsibilities principle" 2008 33 *South African Yearbook of International Law* 113.

¹⁶⁹ Hereinafter referred to as COP 10 *Buenos Aires programme of work on adaptation and response measures* or alternatively Decision 1/CP.10.

¹⁷⁰ Paragraphs 4 and 5 of Decision 1/CP.10.

integrated assessments in order to assist in identifying Africa's needs and concerns related to adaptation. Common concerns among the parties were identified as being enhanced access to funding and broadening the sources of support for adaptation activities, particularly those that build upon indigenous coping strategies.¹⁷¹ African regional climate change adaptation policies should be coordinated on the grounds of National Adaptation Programmes of Action (NAPAs) which in turn should be founded in the commonality among the normative frameworks: national poverty reductions strategies; relevant international instruments; and the concept of sustainable development.¹⁷² The provisions of the UNFCCC, the Kyoto Protocol, Decision 1/CP.10, and the Report of the African Regional Workshop collectively underline the importance of a holistic approach to policy formulation regardless of the subject-matter being regulated. This approach is characterised by incorporating and integrating related regulatory objectives as well as their underlying normative frameworks into coordinated regional policies geared towards the promotion of sustainable development.

Formulating country- or region-specific responses to the issue of climate change is undeniably important but developing or under-developed regions need special assistance in increasing their adaptive capacities. Constraints on the adaptive capacity of African states such as poor governance and under-development highlight the need of African states to access assistance for climate change adaptation.¹⁷³ According to Scholtz, this assistance should take the form of increasing adaptive capacity through international negotiations with developed states pursuant to a common African position on climate change.¹⁷⁴ The African position on climate change resulted from a series of decisions taken by the AU Assembly. The 8th ordinary session instructed members and RECs to integrate climate change into their

¹⁷¹ Section E and paragraph 59 of the Report of the African Regional Workshop, 2007.

¹⁷² Paragraphs 62 to 67 of the Report of the African Regional Workshop, 2007.

¹⁷³ Africa Environment Outlook 2 *Our environment, our wealth* (2006) 36 – 38.

¹⁷⁴ Scholtz bases his argument on the fact that individual African states are unable to enhance their adaptive capacity through international negotiations. It is therefore important that African states co-operate in order to increase their collective bargaining power during international climate change negotiations. See Scholtz W "The promotion of regional environmental security and African common position on climate change" 2010 *African Human Rights Law Journal* 10 (1) 3, 7.

development Programmes.¹⁷⁵ The 12th session of the Assembly in 2009 approved the *Algiers Declaration on Climate Change*, which is to serve as the platform for the common position of African states during the COP negotiations.¹⁷⁶ The Assembly approved the decision that a single delegation should represent African states and mandated the AU Commission to work out ways in which such representation could be achieved. The Commission accordingly submitted its recommendations to the Assembly.¹⁷⁷ The Conference of African Heads of State and Government on Climate Change (CAHOSCC) was established to spearhead Africa's negotiations on climate change and in so doing, to make use of the approved African common position on climate change.¹⁷⁸ Indispensable to the development of an African common position on climate change are the activities of the African Ministerial Conference on the Environment (AMCEN), which pertains to Africa's preparations for the development of a common position on climate change and a comprehensive framework of African climate change programmes.¹⁷⁹

¹⁷⁵ Assembly of the AU, 8th ordinary session, 29-30 January 2007, Addis Ababa, Ethiopia, Assembly/AU Dec 134/(VIII) Decision on Climate Change and Development in Africa Doc Assembly/AU/12/(VIII). See Item 5. See also the AU Assembly/AU Dec 4/(VIII) Declaration on Climate Change and Development. The Sirte Declaration also expresses the concern of the Ministers concerning the threat that climate change poses to the African continent; 10th session of the African Ministerial Conference on the Environment, 29-30 June 2004, Sirte, Libya, Sirte Declaration on the Environment and Development http://www.unep.org/roa/Amcen/Meeting_Documents/default6.asp [date of use 20 September 2013].

¹⁷⁶ Assembly of the AU, 12th ordinary session, 1-3 February 2009, Addis Ababa, Ethiopia, Assembly/AU Dec 236/XII Decision on the African Common Position on Climate Change Doc Assembly/AU/8 (XII) Add 6. See item 3.

¹⁷⁷ See Executive Council, 15th ordinary session, 24-30 June 2009, Sirte, Libya EX CL/ Dec 500(XV) Decision on the Implementation of the Decision on the African Common Position on Climate Change Doc EX.CL/525(XV).

¹⁷⁸ Assembly of the AU, 13th ordinary session, 1-3 July, Sirte, Libya Assembly/AU/Dec 257(XIII) Rev 1 Decision on the African Common Position on Climate Change including the Modalities of the Representation of Africa to the World Summit on Climate Change.

¹⁷⁹ AMCEN Decision Two on Climate Change deals with the issue of climate change and *inter alia* refers to the decision of AMCEN to request the "UN Programme, in collaboration with the Commission of the AU, the secretariat of NEPAD, the UN Economic Commission for Africa, the African Development Bank and other relevant intergovernmental institutions to organise a series of preparatory meetings for Africa's climate change negotiators and to provide the negotiators with substantive technical and policy analysis support to strengthen their preparations". Further, the deliberations of the expert segment of the AMCEN resulted in the development of an "indicative conceptual outline of a comprehensive framework of African climate change programmes". This framework is based on the primary priority of adaptation and the need for mitigation, supported by finance, capacity building and technology. See the Decisions adopted by the African Ministerial Conference on the Environment and its 12th session http://www.unep.org/roa/Amcen/Amcen_Events/12th_Session_AMCEN/index.asp [date of use 20 September 2013].

This African common position is based on the pillars of the Bali Action Plan.¹⁸⁰ It embodies the shared vision of Africa concerning climate change, which emphasises that a climate regime must be "inclusive, fair and effective" and that it should recognise that a solution to the problem will be possible only if it is undertaken in the context of "developing states' need for development space". With reference to mitigation, the African position provides that developed states have mitigation commitments and developing states mitigation actions.¹⁸¹ According to the African position, therefore, only developed states should incur quantified emission reduction commitments, while developing states should "choose from a toolbox of voluntarily registered, nationally appropriate mitigation actions".¹⁸² These mitigation actions are conditional on the provision of technology, financing and capacity building in a "measurable, reportable and verifiable" manner.

With reference to Africa's adaptation to climate change, the common position calls for the establishment of an Adaptation Action Programme¹⁸³ that must provide "scaled-up new, additional, adequate, predictable and sustainable financial, technological and capacity building support" to address the key areas of the programme. It is this need for financial support that poses a significant challenge to African adaptation efforts, as the costs of adaptation are estimated at \$75 to \$100 billion *per annum* for the period 2010-2050.¹⁸⁴ It is most probable that the issue of financing, or rather the lack of financial support will be the single most influential factor inhibiting climate change adaptation in Africa.

¹⁸⁰ Adaptation, mitigation, financing and technology transfer. The COP 13 of the UNFCCC and the COP/MOP 3 were held in Bali in 2007. The conference delivered a "road map" that includes the Bali Action Plan on how to reach a post-2012 agreement before the expiry of the first commitment period of 2008-2012.

¹⁸¹ The language of the African position mirrors that of the Bali Action Plan and differs from the Kyoto Protocol by referring to developed and developing states as opposed to Annex I and Annex II parties.

¹⁸² These include sustainable development policies and measures, programmatic CDM and others. See paragraph 3.2 of the African common position on climate change.

¹⁸³ Paragraph 2 of the African common position on climate change.

¹⁸⁴ <http://beta.worldbank.org/content/economics-adaptation-climate-change-studyhomepage> [date of use 20 September 2013].

Cognisant of various manifestations of Africa's vulnerability to climate change, the African Commission on Human and Peoples' Rights (ACHPR)¹⁸⁵ drafted its *Resolution on Climate Change and Human Rights and the Need to Study its Impact on Africa*, 2009.¹⁸⁶ The Resolution states that:

the lack of human rights safeguards in various draft texts of the conventions under negotiation could put at risk the life, physical integrity and livelihood of the most vulnerable members of society notably isolated indigenous and local communities, women, and other vulnerable social groups.

The main objective of the ACHPR as stated in the Resolution is to study the impact of climate change on human rights in Africa.¹⁸⁷ In essence, the Resolution mandates that the ACHPR is included in the AU's negotiation team on climate change in order to ensure that the necessary human rights safeguards are included in any international agreement or instruments on climate change concluded by the AU.¹⁸⁸ The ACHPR refers to the right to development and the right to a satisfactory environment favourable to development contained in articles 22 and 24 of the Banjul Charter as legal bases for concerted efforts towards addressing climate change at the AU level.

From the foregoing discussion we see that sustainable *energy* development in the AU depends on the formulation of policy on the increased access to sufficient,

¹⁸⁵ The activities of promoting and protecting human and peoples' rights as well as interpreting the provisions of the Banjul Charter are undertaken by the ACHPR, a quasi-judicial organ of the AU established in terms of the provisions of the Constitutive Act. The ACHPR is composed of 11 members elected by the Assembly of Heads of State and Government of the AU as a treaty supervisory body for the Banjul Charter. See article 45 of the Constitutive Act of the AU, which contains the mandate for the establishment of the ACHPR. In pursuit of its stated objectives the ACHPR is mandated, among other things, to prepare cases for submission to the jurisdiction of the African Court on Human and Peoples' Rights (the African Human Rights Court). The jurisdiction of the Court shall extend to all cases and disputes submitted to it concerning the interpretation and application of the Charter, this Protocol and any other relevant Human Rights instrument ratified by the States concerned. See Article 3 of *the Protocol to the African Charter on Human and Peoples' Rights on the Establishment of the African Court on Human and Peoples' Rights*, 1998.

¹⁸⁶ Resolution 153 adopted at the 46th Ordinary Session of the ACHPR held from 11 to 25 November 2009 in Banjul, The Gambia., hereinafter referred to as the Resolution unless otherwise specified.

¹⁸⁷ Paragraph 4 of the Resolution.

¹⁸⁸ Paragraphs 2 and 3 of the Resolution.

affordable and acceptable energy services coupled with the environmentally sustainable use of energy resources. The energy policy and programmes geared towards increased modern energy access must consider climate change as a global environmental challenge within the broader sustainable development context, which includes the protection of human rights. This should result in regional modern energy access policies which facilitate climate change adaptation as a means to an end – the end being sustainable development. The promotion of a low-carbon energy future should be placed at the forefront of environmentally friendly AU energy policies and should be viewed as an absolutely indispensable aspect of the notion of the concept of sustainable energy.

2.6.3 Challenge 3: Mobilising financial resources to expand energy investment and services

In its global modern energy access outlook the EIA estimates that in order for access to electricity to increase to the level where 2 billion people in LDCs have access to electricity by 2030, an investment of 9.6 trillion US dollars is required.¹⁸⁹ In order to achieve the MDG target of eradicating extreme poverty by 2015, a cumulative investment of 223 billion US dollars is needed between 2010 and 2015, and another 477 billion US dollars is needed in the period between 2016 and 2030 for access to electricity to be universal by 2030.¹⁹⁰ Investment would have to take the form of public financing from both domestic resources and official development assistance,¹⁹¹ combined with private entrepreneurship and investment.¹⁹² Identifying

¹⁸⁹ IEA World Energy Investment Outlook 2003.

¹⁹⁰ IEA World Energy Outlook 2010 22.

¹⁹¹ Official development assistance should be used strategically to help fill the gap between financing needs and availability for investments in energy supply capacity. One way is to improve the terms on which foreign direct investment flows to the energy sector by refining and accelerating the use of political risk guarantee for energy investments. Another way is to revive dedicated energy programmes in the framework of development assistance programmes, such as by targeting export credits towards financing sustainable energy initiatives in developing countries. UN Energy 2005 14.

¹⁹² The public sector will remain an important source of financing for investment over the medium term for the energy sector where the country or regulatory risk deters private investors. In order to promote public-private partnerships focused on greater investment in modern energy services, new forms of risk sharing between the private and public sectors should be developed. This type of risk sharing must focus on areas where the private sector is reluctant to take on substantial risks of economically worthwhile developments. UN Energy 2005 13 - 14.

the need for assistance as well as the type of assistance required are the first steps towards addressing the financial challenges related to increasing access to modern energy in LDCs and/or regions. What should follow is to establish how the assistance required is to be obtained. Burden sharing and its potential in addressing the position of under-developed or developing states in bridging the gap in achieving the MDGs was discussed in paragraph 2.4.5 above. The topic will not be further elaborated upon at this juncture. What is, however, of significance in proposing a solution to the challenge of mobilising financial assistance for energy development in an under-developed region such as Africa is the duty of rich nations to assist the poor.

It is trite international law that international cooperation is crucial to addressing the global challenges of an economic, social, cultural and humanitarian nature, as a form of demonstrating respect for human rights.¹⁹³ Causally linked to these provisions are those contained in the Universal Declaration, which not only mandates respect for economic, social and cultural rights as notions indispensable to human dignity but stresses that they should be realised through international cooperation.¹⁹⁴ While these provisions clearly establish an obligation of international cooperation, whether a duty exists among States to assist one another in realising such rights is another question. With specific reference to economic, social and cultural rights, the ICESCR provides that states that have ratified the ICESCR have made a formal, legal commitment to help one another. Article 2(1) provides that states party to the ICESCR must:

take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures.

¹⁹³ In this regard see articles 3 and 54 of the UN Charter.

¹⁹⁴ Article 22 of the Universal Declaration.

In conjunction herewith, article 11 acknowledges that states party to the ICESCR recognise the right of "everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions".¹⁹⁵ Furthermore, states must take appropriate steps to ensure the realisation of this right in accordance with their duty of international cooperation.¹⁹⁶ With specific reference to the right of everyone to be free from hunger, the ICESCR elaborates on the measures to be taken in realising this right by means of assistance.¹⁹⁷ The legal commitment contained in the provisions of the ICESCR mentioned above relates to states providing specifically economic and technical assistance to the maximum of their available resources in order to assist other States in progressively realising these rights.¹⁹⁸ While the ICESCR provides for progressive realisation, thereby acknowledging the possibility of the available resources being limited, it does impose immediate obligations, stating that the steps taken to realise rights must be deliberate, concrete and targeted.¹⁹⁹

2.6.4 Challenge 4: Establishing sound energy management and governance

To ensure that the poor benefit fully from greater access to energy, energy development policy and programmes should be coordinated with social and economic development programmes. Regional policies geared towards regulating the objective of increased access to modern energy should be seen to be co-dependent on existing development initiatives, both at the international and the regional level. Therefore, in formulating a regional energy legal framework capable

¹⁹⁵ Article 11(1) of the ICESCR.

¹⁹⁶ Article 11(2) of the ICESCR.

¹⁹⁷ These measures include improving the methods of the production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition, and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources, taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need. See article 11(2)(a) and (b) of the ICESCR.

¹⁹⁸ Article 21 of the UN Charter. Similar language pertaining to the duty to assist can be found in other treaties such as article 4 of the *Convention on the Rights of the Child*, 1990 (G.A. Res. 44/25).

¹⁹⁹ UN Economic and Social Council: General Comment 3 *The Nature of States Parties' Obligations* (U.N. Doc. E/1991/23 86).

of facilitating the promotion of sustainable development, AU policy makers need to be mindful of the normative landscape created by surrounding concepts such as the MDG initiative and the sustainable development agenda. Such a framework would have to include a comprehensive set of benchmarks and indicators for measuring progress in implementation. Energy planning therefore needs to integrate the different aspects of sustainable development and reflect a holistic approach towards balancing economic, social, and environmental considerations.

The promotion of sustainable development should be seen to embody the overarching objective of regional energy law and policy in as much as the achievement of this objective relates directly to the achievement of the MDGs. In conjunction with linking energy planning to goals and priorities in other sectors as well as sustaining political/governmental commitment to sound energy sector management and governance,²⁰⁰ this will foster integrated energy planning.²⁰¹ Integrating energy considerations such as energy efficiency, affordability and accessibility into the policies of major energy-consuming sectors such as industry, transport, agriculture, education and health will prove invaluable in this regard.²⁰² With reference to the economic dimension of integrated energy planning, tools and methodologies to evaluate the short- and long-term costs of various energy options must be contained in integrated energy planning policies in order to ensure that those interventions most directly related to the achievement of the MDGs are prioritised in national and/or regional planning exercises.

²⁰⁰ The topic of energy management and governance is closely related to the international sustainable development law principle of public participation and access to information and justice. For an overview of this normative overlap read the discussion of Principle 5 of the New Delhi Declaration as provided in paragraph 3.4 hereunder.

²⁰¹ The WSSD called on governments to develop the national energy policies and regulatory frameworks necessary to help create the economic, social and institutional conditions in the energy sector required to improve access to energy services in rural, peri-urban and urban areas. Unfortunately, in many countries comprehensive and integrated energy planning is not carried out. Much energy policy remains restricted to electricity or to urban areas, and in some cases to on-grid applications. This situation is a cause for concern especially in countries/region with under-developed electricity infrastructure, as decentralised energy services are more viable than costly grid connections.

²⁰² JPOI paragraphs 9(e) and 20(b).

In terms of the social aspect of integrated energy planning, well-targeted subsidy and taxation policies are needed to help bring affordable energy services to the poor and to enhance their energy security. Subsidies should focus on the “public good” or social safety component of energy services, using fully funded energy transfer mechanisms that are targeted, predictable and transparent, to benefit the poor.²⁰³ Meeting the major challenges of expanding energy services to rural areas requires dedicated institutional organisation. A common problem for the rural poor is the dispersion of responsibilities for rural energy among numerous ministries and agencies leading to rural energy needs receiving too little attention among the demands of mainstream energy sectors. It is clear that an interdisciplinary mechanism supported by a dedicated agency is required, that can tackle the specific challenges related to delivering rural energy. This institutional arrangement would be important for formulating coordinated²⁰⁴ policies concerning energy and the MDGs in rural areas and would deal with factors such as the roles of the public and private sectors, incentives and subsidies, appropriate quality standards, and prioritising the areas covered by these policies. Local communities should participate in the design and execution of programmes to extend access to energy services in order to ensure the sustainable management of local energy sources such as biomass in accordance with other energy forms suitable for meeting rural energy needs at least cost.²⁰⁵

The Abuja Treaty expressly includes nuclear energy as part of a diversified African energy mix²⁰⁶ focused on sustainable energy generation.²⁰⁷ Furthermore, the

²⁰³ Social safety requires governments to balance short-term support in terms of subsidies with the longer-term need to let market forces influence the choice of fuels and energy practices, and also to let sound fiscal policies influence government funding of subsidies. UN Energy 2005 15.

²⁰⁴ The interdisciplinary nature of such an institutional arrangement is suitable for ensuring cooperation with agencies in other sectors such as health and education, as well as with the main energy agencies dealing with rural energy services. UN Energy 2005 15.

²⁰⁵ Without enough local involvement in designing and implementing energy reforms, reformers run the risk of failing to protect the interest of the poor as well as failing to meet public expectations for reform. The financial implication of energy reform must be analysed thoroughly, as energy accounts for an important share of the rural poor’s expenditure. In the same fashion, the privatisation of energy service companies should include provisions to improve access to service for the poor. Otherwise the benefits of energy reforms may not reach them. UN Energy 2005 16.

²⁰⁶ Ensuring a diverse range of energy sources will work towards sustainable energy supply throughout the region as the risk of depleting any one natural resource is curbed. In terms of the Abuja Treaty the AU’s energy mix should include mineral and water resources, nuclear energy and new and renewable energy. Article 55(1)(a) – (c) of the Abuja Treaty.

provisions of the Abuja Treaty read with those contained in the *Convention of the African Energy Commission, 2006* (CAFREC) acknowledge the importance of regional and/or sub-regional cooperation in the field energy development with the aim of promoting sustainable development.²⁰⁸ The interpretation of the provisions of the Abuja Treaty in particular points toward the inclusion of nuclear energy as sustainable energy source. This means that nuclear energy is a modern energy source which should mitigate environmental impacts, fosters economic growth and stimulates social well-being of current generations and future ones. The inclusion of nuclear energy in a diversified African energy mix geared towards sustainable energy generation will be discussed at length in chapters four and five below.

2.7 Conclusion

The topic of energy poverty and its negative impacts on the promotion of sustainable development in Africa have featured centrally in this chapter. It has been established that the African energy situation is characterised by a general lack of access to modern energy sources as well as extremely high levels of dependence on traditional biomass as the primary energy source. The negative impact of the lack of access to modern energy sources on the promotion of sustainable development has been highlighted by analysing the potential positive impacts thereof on the achievement of the MDGs.²⁰⁹ From the foregoing it is deduced that increased access to modern energy is a *conditio sine qua non* for fulfilling the developmental objectives contained in the MDGs and the subsequent promotion of sustainable development in Africa.

The fact that access to modern energy is both a factor contributing to global development and an indicator of global development is evident from international initiatives such as the UMEAC and the UNSEI. The specific objectives of these initiatives relate to the crucially important role of access to modern energy in

²⁰⁷ Article 55 of the Abuja Treaty.

²⁰⁸ Article 4(2)(b) of the Abuja Treaty and article 4 of the CAFREC.

²⁰⁹ See paragraphs 2.4.1 – 2.4.5 above.

facilitating global sustainable development.²¹⁰ Stated differently, in the absence of access to modern energy, the promotion of sustainable development cannot succeed. The desire for sustainable development in Africa will remain largely unfulfilled. The conclusion is therefore reached that increased access to modern energy should be the primary AU policy response to the challenge of energy poverty in Africa.

Increased access to modern energy as the primary AU policy response to energy poverty should take cognizance of region-specific challenges for increasing modern energy access. The major challenges were identified as widening access to energy services for the poor as a means of supporting development overall; enhancing the environmental performance of energy supply and consumption; mobilising financial resources to expand energy investments and services; and sustaining political commitment to sound energy-sector management and governance.²¹¹ In analysing these challenges, a number of crucially important issues to be considered in the AU policy were highlighted. These include supportive regulatory policies, the integration of climate change considerations into the regional energy expansion initiative, the vital importance of international assistance and cooperation, and coordinated regional action based on coordinated regional law and policy. A policy response reflective of these considerations will, in the opinion of the author, result in energy expansion initiatives capable which will contribute to the achievement of the ultimate goal of sustainable development in Africa.

The need for increased access to modern energy in Africa as a precursor of sustainable development by means of the achievement of the MDGs has been established. The projections which indicate that the MDGs are unlikely to be achieved in the face of energy poverty should serve as an indication of the desperate need for increased access to modern energy sources in Africa. The same is true for the relationship between modern energy access and the achievement of the promotion of sustainable development as objective common to AU member states.

²¹⁰ See paragraph 2.5 above.

²¹¹ See paragraphs 2.6.1 – 2.6.4 above.

In the following chapter, the concept of sustainable development and its on-going evolution in contemporary international law will be analysed.

3 Sustainable development

3.1 Introduction

The concept of sustainable development is commonly considered as having originated primarily as a result of the need to define the interconnectivity of environmental protection and economic growth as factors contributing to development. Sustainable development is not contained in a legally binding treaty or convention and therefore falls within the ambit of soft-law principles. As such, sustainable development is considered a legally non-binding objective in international law. This notwithstanding, sustainable development and the promotion thereof are expressly mandated by various AU legal instruments.²¹² The international legal status of sustainable development is relevant to the problem statement outlined in chapter 1 above as sustainable development is a core concept or goal of regional integration at the AU level. Furthermore, African energy choices need to be guided by sustainable development. This chapter is accordingly geared towards analysing the topics of the legal status of sustainable development in international law and its future in contemporary international law.

The topic of the international legal status of sustainable development will be addressed first, referring to international case law and the opinions of academic writers. A discussion of the importance of soft law in international law-making will establish sustainable development as a normative concept comprising a set of soft-law principles. A brief overview of these principles will set the context for a discussion of the major international conferences and their instruments which contributed to the evolution of the concept. The overview of the historical development of the concept will conclude with a brief introduction of the linkages between the concept of sustainable development and the MDG initiative. It will be

²¹² See paragraph 1.1 above.

shown that sustainable development, while a part of soft-law, does possess some persuasive force in the international law arena. In this regard, sustainable development's evolution as a soft law concept and the general principles comprising it will be discussed. Secondly, recent academic discourse on the future of sustainable development in international law will be analysed with specific reference to the enforcement of the concept.

In order to shed light on the different issues encompassed by the concept of sustainable development, a brief overview of its historical development will be provided. The international conferences and their resulting instruments will provide the basic framework for this discussion. The historical analysis of sustainable development's evolution in international law is intended to provide the necessary context within which to understand its status as soft-law construct as well as its impact on the evolution of the MDGs. The historical overview will be followed by a brief discussion pertaining to sustainable development in contemporary international law. Referring back to the soft law status of sustainable development as established throughout the discussion of its historical evolution, the specific challenge of implementation will be examined. The challenge pertaining to its practical implementation provides the conceptual basis for the proposal that a legal basis for its implementation needs to be identified. In so doing, the nature of the relationship between the sustainable development agenda, the MDG initiative and international human rights will stand central.

3.2 *Legal status of sustainable development in international law*

Regarding the status of sustainable development under international law, the *Gabcikovo-Nagymaros* decision²¹³ provides a sound legal starting point.²¹⁴ In the majority decision sustainable development is referred to with reference to "new

²¹³ *Case Concerning Gabcikovo-Nagymaros* (Hungary v Slovakia) 1997 I.C.J.3.

²¹⁴ Rogers, Jalal and Boyd *An Introduction* 193 – 195.

norms and standards within international law".²¹⁵ This might lead one to conclude that the court indeed sees sustainable development as *possibly* (author's emphasis) being one such norm or principle.²¹⁶ Sustainable development was therefore recognised as being primarily procedural in nature, requiring a consideration of both environmental and development issues in decision-making, but not dictating a particular outcome.²¹⁷ The majority opinion of the court regarding the question of whether or not the concept of sustainable development is a norm under international law therefore unfortunately contributes little towards a definite answer.²¹⁸ It is, however, not the question of whether the court includes sustainable development as one of these norms but rather what the legal status of sustainable development within international law should be which is relevant to the current topic. In this regard, the separate opinion of Judge Weeramantry might prove insightful.

In his opinion, the concept of sustainable development is more than a mere concept but should rather be considered as forming part of modern international law and in particular should be considered as a principle of customary international law.²¹⁹ Secondly, Weeramantry framed sustainable development as a principle of reconciliation in the context of conflicting human rights. On the one hand is the human right to development, which attracts "the overwhelming support of the international community." On the other hand, Judge Weeramantry considered a human right to protection of the environment as a 'vital part' of the human rights discourse. He considered that without such a right, other rights, including the right to life, would necessarily be impaired.²²⁰ In his opinion, the principle of sustainable development acts as a means of reconciling these rights.²²¹ It tempers the right to

²¹⁵ *Gabcikovo-Nagymaros* paragraph 104.

²¹⁶ Lowe "Sustainable Development" 20.

²¹⁷ Boyle AE "The *Gabcikovo-Nagymaros* Case: New Law in Old Bottles" 1997 *Yearbook of International Environmental Law* 14; and Sands P "International Courts and the Application of the Concept of 'Sustainable Development'" 1999 *Max Planck Yearbook of UN Law* 3 393.

²¹⁸ The inference is made that as the concept of sustainable development is referred to directly before the reference to norms and standards, this could be interpreted as an acceptance on the part of the majority decision that sustainable development is to be considered as such. See Rogers Jalal and Boyd *An Introduction* 193 – 195; Lowe "Sustainable Development" 40; and Kiss A "Principles" 61.

²¹⁹ *Gabcikovo-Nagymaros* (separate decision of Judge Weeramantry) paragraphs 204 – 205.

²²⁰ *Gabcikovo-Nagymaros* (separate decision of Judge Weeramantry) paragraphs 91 – 91.

²²¹ Khavari A and Rothwell D "The ICJ and the Danube Case: A Missed Opportunity for International Environmental Law?" 1998 *Melbourne University Law Review* 507.

development by ensuring that it tolerates the 'reasonable demands of environmental protection.'²²² As the basis for his opinion Judge Weeramantry lists various soft law instruments, the practices of international financial institutions, regional declarations, planning documents and state practice.²²³ He concludes that the 'wide and general acceptance' of these instruments embodying sustainable development should be taken to indicate the wide and general acceptance of sustainable development as an international law principle.²²⁴ According to Judge Weeramantry, the reason for the classification of sustainable development as a principle of customary international law is firmly based on state practice and *opinio iuris*, which are the criteria for the evolution of customary international law.²²⁵

The argument put forward by Weeramantry is an interesting one, but as Lowe points out, in order for the instruments listed by Weeramantry to be considered as contributing towards the establishment of a principle of customary international law, they would themselves have to be part of the same body of law.²²⁶ Stated differently, the legal basis for sustainable development as a customary international law principle would therefore hinge upon the international legal status of the instruments containing it. Lowe goes on to argue that sustainable development can never become part of customary international law as, according to him, sustainable development possesses legal normativity beyond the criteria of customary international law.²²⁷ In his view, sustainable development should be considered a "judicial rule" which is created by judges and is also dependent upon these judges for its application.²²⁸ This viewpoint is strongly rejected by the author on two grounds. In the first instance, the evolution of the concept of sustainable development did not depend upon judicial activity but developed as a result of an on-

²²² This view of sustainable development as a concept which reconciles the right to environment with the right to development is extremely relevant to this thesis and will be elaborated upon at length in paragraph 4.9 here-under.

²²³ For an overview of the international instruments and other documents listed, see *Gabcikovo-Nagymaros* (separate decision of Judge Weeramantry) paragraph 207.

²²⁴ Tladi *Sustainable Development* 97.

²²⁵ *Gabcikovo-Nagymaros* (separate decision of Judge Weeramantry) paragraph 207.

²²⁶ Lowe "Sustainable Development" 24.

²²⁷ Lowe "Sustainable Development" 34 – 35.

²²⁸ Lowe "Sustainable Development" 35.

going process spanning decades and starting with the Stockholm process.²²⁹ Secondly, Lowe's argument that judges may choose not only to what extent they subscribe to the concept of sustainable development but whether to subscribe to it at all is undesirable, considering that the concept evolved in order to address international environmental and social crises. The view that sustainable development is an optional concept (that one could "take it or leave it", as it were) is strongly rejected by Weeramantry, as in his opinion sustainable development is a substantive part "of law in a very real sense – a law which the courts must endeavour to administer in the same way as law they consider to be 'hard' and established law".²³⁰ The opinions of Lowe and Judge Weeramantry reiterate that sustainable development is part of soft law. The classification of sustainable development as soft law should, however, not be taken as an indication that it lacks any force in the international law arena. The role of soft law as an element in international law-making is widely appreciated and its influence throughout international law is evident.²³¹ This is also true of sustainable development. Before moving to further discussions on the origins and continuing evolution of sustainable development, let us consider the role of soft law in international law.

3.2.1 *The role of soft law in law-making*

The term "soft law" has a wide range of possible meanings and interpretations, but the most commonly held conceptualisation of the term includes the following three characteristics: soft law is not binding, it consists of general norms or principles – not rules, and it is not readily enforceable through binding dispute resolution.²³² Of specific relevance to this thesis are the first two characteristics listed above. Soft law

²²⁹ This point will be elaborated upon in paragraph 3.3, which pertains to the historical development of the concept of sustainable development.

²³⁰ Weeramantry *Universalising international law* 432.

²³¹ Boyle AE "Some Reflections on the Relationship of Treaties and Soft Law" 1999 *International and Comparative Law Quarterly* 901.

²³² Baxter RR "International Law in Her Infinite Variety" 1980 *International and Comparative Law Quarterly* 549; Chinkin CM "The Challenge of Soft Law: Development and Change in International Law" 1989 38 *International and Comparative Law Quarterly* 850; Dupuy PM "Soft Law and the International Law of the Environment" 1991 12 *Michigan Journal of International Law* 420; Sztucki J "Reflections" 365; and Elias E and Lim C "General Principles of Law, Soft Law and the Identification of International Law" 1997 28 *Netherlands Yearbook of International Law* 3.

is non-binding and therefore contrasts with hard law (usually contained in treaties), which is binding. The differentiation between soft and hard law lies in the legal form in which the soft law appears. This means that law contained in treaty form is always hard law and therefore always binding. If the form is that of a non-binding agreement, it is not a treaty and therefore qualifies as a soft agreement.²³³ This should, however, not be taken to mean that all forms of soft law are non-binding, as some agreements between states may be binding even if not in treaty form.²³⁴

Reliance on soft law as part of the law-making process takes a number of different forms, including declarations of intergovernmental conferences, such as the *Rio Declaration on Environment and Development*, 1992²³⁵ (Rio Declaration), which refers explicitly to sustainable development.²³⁶ This declaration is a carefully negotiated and drafted statement and has some normative significance despite its non-binding, non-treaty form. Boyle views these soft law instruments as containing at least an element of good faith commitment, and in many cases, as reflecting a desire to influence state practice, an element of law-making intention and progressive development of international law. In this sense non-binding soft law instruments are not fundamentally different from multilateral treaties, which serve much the same law-making purposes, making them both an alternative to, and part of, the process of multilateral treaty-making.²³⁷ The reasons for the foregoing statements are varied. First, it may be easier to reach agreement if the form is non-binding.²³⁸ Secondly, it may be easier for some states to adhere to non-binding instruments because they can avoid the domestic treaty ratification process and perhaps escape democratic accountability for both the domestic treaty ratification

²³³ For an overview of the Helsinki Accords see Schachter O "The Twilight Existence of Non-Binding International Agreements" 1997 71 *American Journal of International Law* 296.

²³⁴ The difficulty in assessing whether or not an agreement is indeed a binding treaty, and therefore hard law was highlighted in the decision of the *Qatar-Bahrain Maritime Delimitation Case* (1994) I.C.J. Rep. 112. See also *Anglo-Iranian Oil Case* (1952) International Court of Justice Rep. 93.

²³⁵ Rio Declaration on Environment and Development, 13 June 1992, U.N. Doc. A/CONF.151/26.

²³⁶ Other forms of law-making that rely on soft law are: resolutions of the UN General Assembly, such as those dealing with outer space, the deep seabed, decolonisation, or permanent sovereignty over natural resources; or codes of conduct, guidelines and recommendations of international organisations such as the IAEA or the UN Environmental Program (UNEP). See Boyle AE 1999 *International and Comparative Law Quarterly* 902.

²³⁷ Boyle 1999 *International and Comparative Law Quarterly* 902.

²³⁸ The use of soft law instruments enables states to agree to more detailed and precise provisions because their legal commitments, and the consequences of any non-compliance, are more limited. See Boyle 1999 *International and Comparative Law Quarterly* 903.

process and the policy to which they have agreed. While this may be viewed as a reason for promoting the use of soft law in law-making, it may also make it comparably harder to implement such policies if funding, legislation, or public support is necessary.²³⁹ This is an important matter to consider and will be elaborated upon in subsequent sections dealing with the enforcement of sustainable development as soft law concept. Thirdly, soft law instruments will normally be easier to amend or replace than their hard law counterparts, especially if the only requirement is for an international institution to adopt a new resolution.²⁴⁰ Lastly, soft law instruments may provide more immediate evidence of international support and consensus than a treaty, the impact of which is qualified by reservations and the need to wait for ratification and entry into force.²⁴¹ Both treaties and soft law instruments can serve to focus consensus on rules and principles and mobilise consistent response on the part of states. While treaties may be more effective than soft law instruments for this purpose because they carry greater weight due to their legally binding nature, the assumption that hard law is more authoritative than soft law is misplaced.²⁴² Referring to the Rio Declaration, which both codifies existing international law and aims to develop new law,²⁴³ it is not obvious that a treaty with the same provisions would carry greater weight or achieve its objectives any more successfully. Furthermore, the immediate consensual support secured by the Rio Declaration serves to strengthen the impression that it (as a soft law instrument) embodies a valuable contribution to international law-making. Soft law instruments and therefore the soft law concepts or principles enshrined in them are important in facilitating law-making at the international level.

3.3 Historical development of sustainable development

²³⁹ Boyle 1999 *International and Comparative Law Quarterly* 903.

²⁴⁰ Treaties take time to replace or amend, and the attempt to do so can result in an awkward and overlapping network of old and new obligations between different sets of parties. An example of the confused state of law which can result is the Warsaw Convention Relating to International Carriage by Air, 1929. See Gardiner "Revising the Law of Carriage by Air: Mechanisms in Treaties and Contract" (1998) 47 278.

²⁴¹ Boyle 1999 *International and Comparative Law Quarterly* 903

²⁴² Boyle 1999 *International and Comparative Law Quarterly* 904.

²⁴³ Boyle and Freestone *International Law and Sustainable Development* Chapter 1; and Sands *Greening International* Chapters 1 and 3.

Originating in the 1980s as a conservation concept,²⁴⁴ sustainable development was presented to the international arena by the report of the Brundtland Commission in 1987.²⁴⁵ The concept was later crowned as the leading concept guiding global efforts to protect the environment.²⁴⁶ Efforts dating back to the late 1960s to place the environment on the agenda of international policy-makers had failed, mainly due to the inability of the environmental message to spread beyond environmental ministries into economic and social policies.²⁴⁷ The key operative of the World Commission on Environment and Development (WCED), which was established in 1983, was therefore to reach out to this audience. According to the message sent out by the WCED, sustainable development would align economic and environmental considerations. The concept was seen as a breakthrough in international environmental governance and resulted in a number of considerable normative developments which took the form of the conclusion of several important environmental treaties,²⁴⁸ as well as an increase in the number of ratifications of major existing conventions.²⁴⁹

Before moving on to a discussion of the challenges pertaining to the enforcement of sustainable development, which relates strongly to its legal status, an overview of the historical development of the sustainable development will be provided. The discussion on the historical evolution is structured around the most prominent international development conferences and their resulting initiatives and instruments.

²⁴⁴ IUCN, UNEP, WWF 1980.

²⁴⁵ *Report of the UN World Commission on Environment and Development*, Part I, chapter 2, section I ('The Concept of Sustainable Development').

²⁴⁶ See the Rio Declaration, particularly principles 4 and 8.

²⁴⁷ Vinuales JE "The Rise and Fall of Sustainable development" 2013 22 *Review of European, Comparative & International Environmental Law* 5.

²⁴⁸ *UN Framework Convention on Climate Change*, 9 May 1992, 31 I.L.M 849; *Kyoto Protocol to the UN Framework Convention on Climate Change*, Kyoto, 11 December 1997, 2303 U.N.T.S. 148; *Convention on Biological Diversity*, 5 June 1992, 1760 U.N.T.S. 79; *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, 29 January 2000, 39 I.L.M 1027 (2000); *UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa*, 17 June 1994, U.N. Doc. A/AC.241/15/Rev. 7 (1994), 33 I.L.M 1328; *Agreement for the Implementation of the Provisions of the UN Conventions on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*, 4 August 1995, 2167 U.N.T.S. 88; *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade*, 10 September 1998, 2244 U.N.T.S. 337; and the *Stockholm Convention on Persistent Organic Pollutants*, 22 May 2001, 40 I.L.M 532 (2001).

²⁴⁹ See UNEP, *Global Environmental Outlook 5. Environment for the future we want* (UNEP, 2012), chapter 17 464, figure 17.1.

In this regard, the three main UN conferences on environment and development, namely the *Stockholm Conference on the Human Environment*, 1972; the *Rio Conference on Environment and Development*, 1992; and the *Johannesburg World Summit on Sustainable Development*, 2000, will be used as starting point. Where relevant, reference will be made to other international initiatives and instruments which contributed either directly or indirectly to the development of the concept of sustainable development. Especially relevant in this regard is the development of the MDGs, which to a great extent embody a set of practical, time-bound criteria for measuring sustainable development.

3.3.1 *The Stockholm Declaration on Human Environment, 1972*²⁵⁰

The United Nations Conference on the Human Environment held in 1972 in Stockholm, Sweden (Stockholm Conference) stated that environmental and economic priorities, while sometimes seemingly in conflict with one another, are two sides of the same coin.²⁵¹ It is interesting to note, however, that although the Stockholm Conference is considered to be of historical significance as the first global conference that recognised the need to alleviate poverty in the developing world as a prerequisite for protecting the environment,²⁵² the plight of the developing world was not the motivating factor behind convening the conference.²⁵³ Because of its focus on typically First World environmental problems the conference did not initially receive support from developing countries. In order to curb the negativity surrounding the conference and to achieve prior consensus on a number of the issues to be discussed, a preparatory conference of experts was called together.. This conference of experts came to be known as the Founex Committee, and together they drafted the Founex Report on Development and the Environment, 1971 (hereinafter referred to as the Founex Report), which identified the crucial link

²⁵⁰ Stockholm Declaration, I.L.M 11 (1972), 1416.

²⁵¹ Vogler "International politics" 432.

²⁵² Adams *Green Development* 14.

²⁵³ The primary rationale behind the conference came from the developed world and the initial focus was on the environmental problems related to industrialisation or, as Adams referred to it, the "classic concerns of First World Environmentalism". See Adams *Green Development* 36 and Tladi *Sustainable development* 17.

between environmental protection and development concerns.²⁵⁴ The Founex Report proved to be crucial not only in ensuring the success of the Stockholm Conference but also in forging the link between environmental protection and development concerns in the broad sense.

The Stockholm Conference resulted in the adoption of three non-binding international legal instruments, namely: the Stockholm Declaration; the *Action Plan for the Human Environment*, 1972;²⁵⁵ and the *Recommendations for Action at the International Level*, 1972.²⁵⁶ The Stockholm Conference also saw the creation of the United Nations Environmental Program (UNEP). The Stockholm Declaration is viewed by many as the most important for the conceptualisation of sustainable development due to the emphasis which it places on the link between development and the environment in its 26 principles.²⁵⁷ It provides a basis for the idea that development and environmental protection are not necessarily in conflict.²⁵⁸ In addition to the link between development and the environment, a link between the principle of sustainable development and the concept of equity can be discerned.²⁵⁹ Both UNEP and the Stockholm Declaration place the focus primarily on the importance of environmental protection in facilitating development. UNEP's stated mission, namely enabling nations to improve the quality of life of their citizens without compromising that of future generations through exercising environmental protection is closely connected with the Stockholm Declaration's focus on integrated and coordinated environmental planning and its role in development.

²⁵⁴ Paragraphs 1.2 and 1.4 of the Founex Report. Most notably, the Founex Report recognised that developing countries face a different set of environmental challenges which reflect the poverty and very lack of development of their societies. The Report emphasised that these challenges were no less important than those suffered by industrialised countries. At the same time the Report recognised the link between the process of development and environmental problems. For an overview of the provisions of the Founex Report, see the *Founex Report on Development and the Environment*, 1971 available at <http://www.stakeholderforum.org/fileadmin/files/Earth%20Summit%202012new/Publications%20and%20Reports/founex%20report%201972.pdf> [date of use 1 February 2013].

²⁵⁵ 11 I.L.M 1421.

²⁵⁶ 11 I.L.M 1416.

²⁵⁷ For an overview of the relevant principles see Tladi *Sustainable development* Chapter 2, footnote 41.

²⁵⁸ See Principle 5 and Principle 8 of the Stockholm Declaration. Principle 5 requires that development processes should not over-exploit non-renewable resources to the point of exhaustion, while Principle 8 links development to favourable living conditions and working environments.

²⁵⁹ The principles of sustainable development will be discussed in detail in paragraph 3.4 below.

Criticism levelled against the Stockholm Conference is that its fixation with the environmental aspect of development made it seem as if it was more concerned with identifying trade-offs between environment protection and development than with promoting linkages between the two.²⁶⁰ The criticism levelled against the Stockholm Conference is unnecessarily harsh as it should be borne in mind that the Conference was held with the express purpose of focusing on environmental issues. It is also important to note that the issues under discussion would prove to be relevant not only for the era during which the Conference took place, but would remain environmental challenges for generations to come.²⁶¹ Appreciation is also due to the fact that, while the concept of sustainable development as such was as yet unknown, the mission statement of the UNEP clearly makes mention of the notion of inter-generational equity – a principle that would later become synonymous with international sustainable development law.

The Stockholm Conference is regarded as the fore-runner to the Rio Conference in terms of the institutional and conceptual milestones achieved at and after it. In the twenty years between the two events, many events relating to international environmental law occurred, none of which are relevant to the discussion at hand. With reference to events contributing directly to conceptualising sustainable development, none is arguably more relevant than the Brundtland Commission Report.

3.3.2 *Report of the World Commission on Environment and Development, 1987*²⁶²

²⁶⁰ Prizzia "Sustainable Development" 21.

²⁶¹ These were seen to include the impoverishment of the genetic organisms living on earth, the greenhouse effect of carbon dioxide emission, and the importance of recycling waste. See Lang 2003 www.europainstitut.hu/pdf/beg20/lang.pdf [date of use 4 August 2011].

²⁶² A/RES/42/187. Hereinafter referred to as the the Brundtland Report.

Between the Rio and Stockholm Conference, perhaps the event that most directly influenced the development of the concept of sustainable development was the 1987 *Report of the UN World Commission on Environment and Development* or, as it is more commonly known, the Brundtland Commission. In its 1987 Report the Brundtland Commission reaffirmed the environmental concerns raised at the Stockholm Conference and added to these issues of global importance related to the economic and social aspects of development.²⁶³ The task of the Commission was to propose long-term environmental strategies for achieving global sustainable development and to foster cooperation regarding environmental concerns between countries with various levels of development.²⁶⁴ The Brundtland Report expressly makes mention of the fact that the concepts of development and the environment are intimately interwoven and that the choices and actions of the present generation will impact upon the livelihoods of future generation. The Commission accordingly defined sustainable development as: “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”.²⁶⁵

The Brundtland Report further elaborates on the concept of sustainable development by noting that the processes implemented to promote its achievement must be based on environmental, social and economic considerations and that, above all, the needs of developing nations and future generations must be taken into account in all phases of decision making. Crucial to the over-all message of the Report is the assumption that the component parts of development (social, economic and environmental) on the one hand as well as development and the environment on the other are inter-woven “into a seamless net of cause and effect”.²⁶⁶ Another important theme repeated throughout the Report is the need for recognising the

²⁶³ The Report makes mention of the spread of poverty, especially in developing countries, the impact of economic debt, and the environmental degradation caused mainly by the effects of deforestation. Brundtland Report.

²⁶⁴ Brundtland Report ix.

²⁶⁵ Brundtland Report 43.

²⁶⁶ Brundtland Report 4.

importance of poverty alleviation (which would later become one of the MDGs) as part of the Commission's integrated approach to development.²⁶⁷

In the final instance, the role the Brundtland Commission and its Report played in furthering the sustainable development agenda is evident, considering the impact the proposals put forward by the Commission would later have on the Rio Conference. The proposals of the Commission included integrating environmental concerns into developmental activities;²⁶⁸ strengthening environmental protection agencies;²⁶⁹ increasing international cooperation on identifying and assessing environmental hazards;²⁷⁰ recognising various role players;²⁷¹ and preparing a UN declaration on the environment and sustainable development.²⁷² These proposals, especially the last, not only called for but also served as impetus for the Rio Conference

3.3.3 *UN Conference on Environment and Development, 1992*

After the Brundtland Commission Report, the UN General Assembly called for a UN Conference on the Environment and Development (UNCED) which was subsequently convened in Rio de Janeiro in 1992. The Rio Conference resulted in the adoption of five documents, known as the Rio Instruments – three of which were non-binding while the remaining two were Conventions with binding force of law once they entered into force.²⁷³ If the Brundtland Commission gave the concept of sustainable development currency in international policy, it was the Rio Conference and its instruments that pushed it into the main stream of thought of international

²⁶⁷ Brundtland Report 29.

²⁶⁸ The Commission stressed that this proposal should be applicable to the international community at all levels – whether national, regional or global. See Brundtland Report 314.

²⁶⁹ Brundtland Report 319.

²⁷⁰ Brundtland Report 323.

²⁷¹ Brundtland Report 326.

²⁷² Brundtland Report 330.

²⁷³ These include: the *Rio Declaration on the Environment and Development*, 1992 (31 I.L.M 876); *Agenda 21: A Programme of Action for Sustainable Development*, 1992; the *Forest Principles*, 1992 (31 I.L.M 882); the *UN Framework Convention on Climate Change*, 1992 (31 I.L.M 851); and the *Convention on Biodiversity*, 1992 (CBD) (31 I.L.M 822). The first three instruments are non-binding in nature while the two Conventions were opened for signature at the Rio Conference.

law.²⁷⁴ So important are the Rio Conference and its instruments as part of the evolution of the concept of sustainable development that some argue that Rio is the origin for establishing international sustainable development law as a component of international environmental law.²⁷⁵

Looking at the Rio Declaration, one of the instruments to emerge from the Rio Conference, one sees that, as was the case with the Stockholm Declaration, the Rio Declaration seeks to balance environmental concerns with development concerns. The language of the Rio Declaration echoes to a great extent the language contained in the Stockholm Declaration, in the sense that its primary focus falls on the important role environmental protection will play in facilitating the sustainable development of the human race.²⁷⁶ In this regard the Rio Declaration states that its ultimate goal is cooperation focused on the fostering of international agreements which protect the integrity of the global environmental and developmental system.²⁷⁷

With reference to the content of the concept of sustainable development, the Rio Declaration affirms the notion that human beings should be at the centre of concerns for sustainable development but qualifies this statement by adding to it that human existence should take place in harmony with nature.²⁷⁸ It states plainly that the right to development must be fulfilled so as to equitably meet the developmental and environmental needs of present and future generation.²⁷⁹ This definition is based squarely on the foundations of the definition of sustainable development in the Brundtland Report. The Rio Declaration contributes further to the discussion surrounding the content of the concept by laying down fundamental principles of international sustainable development law, on which nations can base their future

²⁷⁴ Tladi *Sustainable development* 26.

²⁷⁵ Boyle and Freestone *International law and sustainable development* 3; Sands "International Law in the field of sustainable development" 58; and Sands *Principles of international environmental law* 25

²⁷⁶ 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 4 of the Rio Declaration.

²⁷⁷ Preamble to the Rio Declaration.

²⁷⁸ Principle 1 of the Rio Declaration.

²⁷⁹ Principle 3 of the Rio Declaration.

decisions and policies, considering the environmental implications of socio-economic development.²⁸⁰ A decade after Rio the UN convened yet another conference, the WSSD, in Johannesburg in 2002, which provided yet another opportunity to further the normative development of the notion of sustainable development.

3.3.4 *The World Summit on Sustainable Development, 2002*

From the outset it must be stated that the WSSD was never intended to produce new ideas or concepts relating to sustainable development. The main aim of the WSSD was to propose methods of implementing the proposal put forward during the forty years spanning the normative evolution of the concept of sustainable development.²⁸¹ The *Johannesburg Declaration on Sustainable Development, 2002*, (Johannesburg Declaration) while legally non-binding, provided food for thought with its repeated emphasis on the need for poverty eradication.²⁸² Poverty eradication had been included as one of the MDGs in the text of the Millennium Declaration two years prior to the WSSD. It is noteworthy, though, that the Johannesburg Declaration views poverty eradication both as an objective as well as an essential requirement for sustainable development, thereby strongly linking the MDG initiative with the sustainable development agenda.²⁸³ The provisions of the Johannesburg Declaration view sustainable development as a holistic concept which integrates and reflects the development objectives contained in the Millennium Declaration. The text of the JPOI also strongly reinforces this concept as it refers expressly to the direct link between the promotion of sustainable development and the achievement of the MDGs.²⁸⁴

²⁸⁰ These principles in conjunction with other ISDL principles will form the basis of the discussion in paragraph 3.4.

²⁸¹ Pallemmaerts M "Is multilateralism the future? Sustainable development or globalisation as a "comprehensive vision" of the future of humanity" 2003 5 *Environment, Development and Sustainability* 275; Pallemmaerts M "International law and sustainable development: Any progress in Johannesburg" 2003 *Review of the European Community and International Environmental Law* 1; Pallemmaerts "From Stockholm to Rio" 227.

²⁸² See paragraph 12 of the Johannesburg Declaration.

²⁸³ Paragraphs 7 and 11 of the Johannesburg Declaration.

²⁸⁴ Paragraph 7 of the JPOI.

3.2.5 *The MDG initiative and sustainable development*

The 21st century began with an unprecedented international commitment ending global poverty. World leaders from 189 countries, including 147 heads of state and government, gathered at the UN General Assembly and adopted the Millennium Declaration in 2000. The Millennium Declaration sets out within a single framework the key challenges facing humanity at the threshold of the new millennium, outlines a response to these challenges, and establishes concrete measures for judging performance through a set of inter-related commitments, goals and targets on development, governance, peace, security and human rights. In recognition of the need to translate this commitment into action, the MDGs were drafted. The MDGs are the world's time-bound, quantified targets for addressing extreme poverty in its many dimensions — income poverty, hunger, disease, lack of adequate shelter, and exclusion — while promoting gender equality, education, and environmental sustainability. Since their endorsement by the UN General Assembly in 2001, the MDGs have risen to the top of the development agenda and are the common focus of priorities for the development community. The link between the MDGs and sustainable development is evident, especially considering the texts of the Johannesburg Declaration and the JPOI. Furthermore, the Millennium Declaration itself includes specific reference to sustainable development.

This brings us to the second characteristic of soft law listed previously, namely that soft law usually consists of general norms and principles rather than rules. This view of soft law focuses on the contrast between rules (which are generally contained in hard law) and norms or principles which, being more open-textured or general in their content and wording, can thus be seen as soft.²⁸⁵ Sustainable development is a normative concept comprising a set of general norms and principles. These principles find their origins and progressive development in the international conferences and declarations responsible for the genesis of the notion of sustainable development itself.

²⁸⁵ Boyle 1999 *International and Comparative Law Quarterly* 902.

3.4 Sustainable development as a normative construct

Emerging mainly from "soft law instruments" such as declarations, the principles of sustainable development assert a certain persuasive force²⁸⁶ whilst showing a normative character in international law in the sense that they create obligations or rights for states bound by them.²⁸⁷ These principles may also prove helpful in resolving conflicts related to sustainable development and may support the balanced integration of laws and policies at the intersection of international environmental, social and economic law.²⁸⁸ Viewing them as a product of the relationship among the different spheres of international law speaks to the notion of an "interstitial norm", as suggested by Lowe. He holds that sustainable development is a metaphysical principle that acts upon the primary rules and principles of international law, specifically the right to development and the right to environmental protection.²⁸⁹ According to this argument, an interstitial norm operates at the interstices of primary norms in those instances where they threaten to overlap or conflict.

This viewpoint correlates with that of Judge Weeramantry, who saw sustainable development as a tool for harmonising the seemingly opposing desires for the promotion of development on the one hand and the protection of the environment on the other.²⁹⁰ Both Lowe and Weeramantry's notion of sustainable development as an interstitial norm give rise to it being viewed as a construct which is applied to "articulate broader principles in concrete situations".²⁹¹ The issue of the manner in which these boundaries should be set and what the principles comprising them should be might be resolved by considering the argument put forward by Winfried Lang.

²⁸⁶ Lowe "Sustainable Development" 16.

²⁸⁷ French *International Law and Policy of Sustainable Development* 97.

²⁸⁸ Cordonier Segger and Khalfan *Sustainable Development Law* Part 4 1.

²⁸⁹ These two rights will be discussed in detail in Chapter 3 following hereafter. See also Lowe "Sustainable Development" 31.

²⁹⁰ Separate opinion of Judge Weeramantry paragraph 205.

²⁹¹ Mayeda G "Where should Johannesburg take us? Ethical and legal approaches to sustainable development in the context of international environmental law" 2004 *Colorado Journal of International Environmental Law and Policy* 37.

While Lang applies his argument to the position of the so-called UN Principles within international environmental law,²⁹² the same basic line of thought should prove applicable to sustainable development principles within international law. Lang states that while principles constitute important tools within the legal context, their normativity remains a "grey-zone phenomenon" which affects policy-makers and lawyers alike.²⁹³ In proposing a solution to the problems surrounding the normativity of principles, and especially the so-called soft-law principles, Lang puts forward a specific methodology. Referring to the inclusion of a series of principles into specific international legal documents,²⁹⁴ Lang argues that the normative value of these principles lies either within the principles themselves or in the context within which they are enumerated. The methodology put forward by Lang entails that those specific principles which feature in either all four of the documents or in the texts of two of the documents should be seen as having "a chance of entering the realm of international environmental law".²⁹⁵ In applying this methodology, Lang surmises that three categories of principles exist, which are listed according to the degree to which they are legally binding, namely existing principles, emerging principles and potential principles.²⁹⁶

Schrijver identifies seven main dimensions of the concept of sustainable development distilled from the above-mentioned conferences and their instruments, which describe sustainable development in a more practical manner.²⁹⁷ These seven dimensions are the sustainable use of natural resources,²⁹⁸ poverty reduction

²⁹² Lang W "UN-Principles and International Environmental Law" 1999 *Max Planck United Nations Yearbook* 157.

²⁹³ Lang 1999 *Max Planck UN Yearbook* 159.

²⁹⁴ In this regard Lang refers to a series of environmental principles contained in four specific international texts, namely: the Stockholm Declaration, the Rio Declaration, UNEP and the *Report of the Expert Group Meeting on Identification of Principles in International Law for Sustainable Development*, Geneva, Switzerland, 26-28 September 1995. See Lang 1999 *Max Planck UN Yearbook* 160.

²⁹⁵ Lang 1999 *Max Planck UN Yearbook* 165.

²⁹⁶ For a list of these principles see Lang *Max Planck UN Yearbook* 1999 171.

²⁹⁷ Schrijver "Natural Resource Management and Sustainable Development" 592; Boyle and Freestone "Introduction" 8 - 16; Cordonnier Segger and Khalfan *Sustainable development law* Part 4.1, French 2000 *International law and policy of Sustainable development* 227.

²⁹⁸ In the forerunners of the Rio texts the term "sustainable use of natural resources" often appears in the place of "sustainable development". It was thus essentially a principle of conservation, directed at the conservation and rational, prudent use of non-renewable resources, and the indefinite maintenance of the productivity of renewable resources. This particular interpretation of the term sustainable development continues to exist. It received additional emphasis with the

and economic development/growth,²⁹⁹ the integration of developmental and environmental concerns,³⁰⁰ inter- and intra-generational equity,³⁰¹ the time dimension,³⁰² public participation and respect for human rights,³⁰³ and good governance.³⁰⁴ These dimensions correlate to a large extent with the principles of international law pertaining to sustainable development.

realisation that human life on this planet depends on the continued existence of its physical and biological systems within a relatively and perhaps increasingly narrow range of parameters. See Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 228.

²⁹⁹ The Rio instruments broadened the original meaning of sustainable development by adding to the sustainable use of natural resources the objectives of poverty reduction, economic development for developing countries, and economic growth for all. The inclusion of the economic component embodies a compromise between the industrialised countries, which feared that the overt focus on conservation would slow economic growth, and the developing countries, which saw sustainable development's potential in reaffirming development assistance. Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 228.

³⁰⁰ The integration principle is well formulated in Principle 4 of the Rio Declaration, which states that environmental protection shall be considered an integral part of the development process and cannot be considered in isolation from it. Read with Principles 3 and 5, which pertain to the right to development and poverty eradication respectively, the need for integrating economic development with environmental protection is evident. It also builds on the UN Charter principle of the duty to cooperate, as it calls for a global partnership for sustainable development. Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 229.

³⁰¹ Stated unequivocally by the text of the Brundtland Report, equity (which includes inter- and intra-generational equity) calls for taking into account the interests of both the present and the future generations of humankind. In order for development to be considered sustainable, current generations must manage their natural environment in such a fashion as to conserve it for themselves as well as for future generations. In the second instance, the use of the natural resources must take place cognizant of the needs of other users. Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 229.

³⁰² Sustainable development calls for both long-term commitments (for future generations) as well as short-term actions. Schrijver refers to the immediate action needed for dealing with environmental challenges such as climate change. Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 229.

³⁰³ Principles 1, 3 and 10 of the Rio Declaration to one extent or another contain reference to the realisation of the right to healthy and productive lives, a right to development, and a right to access to information, and a right to participate in decision-making processes. While these provisions do not embody clear-cut human rights they contribute to focusing attention on the important links between sustainable development and the realisation of human rights. This is particularly true, considering the progress made in the international recognition of a right to development and a right to a clean environment. See the Vienna Declaration and Programme of Action of the World Conference on Human Rights, 1993 in UN Conf. A/CONF. 157/23; and McGoldrick D "Sustainable Development and Human Rights: an Integrated Conception" 1996 *International and Comparative Law Quarterly* 798.

³⁰⁴ Good governance as an international development principle pertains to democratic and responsible government characterized by an emphasis on human rights and the duties of governments towards their own citizens. Good governance consists both of substantive elements relating to general principles of the governance of a constitutional state and procedural elements relating to transparency and accountability. Article 9 of the *Convention of Cotonou*, 2005 contains a reasonably accurate description of good governance, stating that it is "the transparent and accountable management of human, natural, economic and financial resources for the purposes of equitable and sustainable development. It entails clear decision-making

3.5 *International law of sustainable development*

International law in the field of sustainable development finds its origins in three branches of international law, namely international law relating to development, international environmental law, and international human rights law. Consequently, the principles and rules of each of these three branches of international law feed into the development of international law relating to sustainable development.³⁰⁵ Schrijver is of the opinion that a series of general principles³⁰⁶ combined with a set of more specific principles as contained in the *New Delhi Declaration, 2002*³⁰⁷ may indeed embody a framework for an international law of sustainable development. With reference to the general principles he lists the rule of law in international economic relations,³⁰⁸ the duty to cooperate,³⁰⁹ and the observance of human rights.³¹⁰ With reference to the third principle listed by Schrijver, the right to development plays a specific and singularly important role in integrating the realisation of human rights with the promotion of sustainable development.³¹¹ This thought will be elaborated upon at length in chapter four below.

On the topic of what should be considered more specific principles of sustainable development, Schrijver lists the seven principles of international law in the field of

procedures at the level of public authorities; transparent and accountable institutions, the primacy of law in the management and distribution of resources and capacity building for elaboration and implementation measures aiming in particular at preventing and combating corruption." See Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 236.

³⁰⁵ Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 237.

³⁰⁶ These general principles are derived from international development law, international human rights law and international environmental law and have become important pillars of international law on sustainable development.

³⁰⁷ Resolution of the 70th Conference of the International Law Association in New Delhi, India, 2 – 6 April 2002. See Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 238.

³⁰⁸ This principle entails a duty on states and international institutions to abstain from measures of economic policy incompatible with their international obligations and detrimental to the sustainable development opportunities of third world countries.

³⁰⁹ This duty pertains to cooperation on global development as well as cooperation on the protection of the environment. This principle applies not exclusively to states but also to a list of role-players which includes international institutions, civil society and the business community.

³¹⁰ This principle is instrumental in integrating human rights concerns in the sustainable development movement as well as emphasising the relationship between the realisation of human rights and the promotion of sustainable development.

³¹¹ Article 1 of the Declaration on the Right to Development.

sustainable development as formulated by the International Law Association in 2002.³¹² The New Delhi Declaration identifies seven principles distilled from several global processes spanning over four decades. These principles integrate the goals, objectives and definitions related to sustainable development.³¹³ As Schrijver states, the New Delhi principles are not exhaustive and several are not yet recognised as binding rules of customary international law. They do, however, provide a normative context for best policies and laws in the field of sustainable development.³¹⁴

3.5.1 *The duty of states to ensure the sustainable use of natural resources*

The duty to ensure the sustainable use of natural resources is an offshoot of the established principle of sovereignty over natural resources which accords each state the right to possess and determine freely the management of its natural resources for its own development within the limit of international law.³¹⁵ Resource sovereignty has increasingly been interpreted as giving rise to a series of duties, most notably the duty of the sustainable and prudent use of natural resources, the protection of biological diversity and the elimination or reduction of the effects of over-exploitation

³¹² Taking into consideration the comprehensive and detailed study and analysis undertaken by the ILA in drafting the New Delhi Declaration, as well as the relative normative clarity of their findings, the New Delhi principles are widely considered to provide the most current benchmark of guiding principles on international law on sustainable development. The New Delhi principles were drafted in reference to existing legal texts such as the Brundtland Legal Expert Group on Environmental Law; the 1995, 1997 and 2000 Reports by groups of experts convened by the UN Secretariat and UNEP; the revised IUCN Draft Covenant on Environment and Development and the Earth Charter, 2000. See Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 238.

³¹³ The most important international policy making processes leading up to the New Delhi Declaration include: the Stockholm *Declaration of the UN Conference on Human Environment* of 1972 (hereinafter referred to as the Stockholm Declaration); the *Brundtland Report*; and the *Rio Declaration on Environment and Development* of 1992 (hereinafter referred to as the Rio Declaration) which also contain *Agenda 21*. The *Brundtland Report* contained 22 legal principles which were echoed in the 27 principles contained in the Rio Declaration. The Rio Declaration was followed by the *Report of the Expert group Meeting on Identification of Principles of International Law for Sustainable Development*, released by the UN Commission on Sustainable Development in 1995. This Report led to the drafting of the New Delhi Declaration. See Goepel M "Formulating Future Just Policies: Applying the Delhi Sustainable Development Law Principles" 2010 *Sustainability* 1697.

³¹⁴ Schrijver "Development – The Neglected Dimension in the Post-Rio International Law of Sustainable development" 237; and Goepel 2010 *Sustainability* 1698.

³¹⁵ Scholtz W "Custodial Sovereignty: Reconciliation of Sovereignty and Global Environmental Challenges amongst the Vestiges of Colonialism" 2008 *Netherlands International Review* 329; and Hossain and Chowdhury *Permanent Sovereignty* 1.

of soil, deforestation, over-fishing and pollution.³¹⁶ It also includes the reciprocal responsibility of states not to cause transboundary damage.³¹⁷ The principle of sovereignty over natural resources is expressly acknowledged in the texts of the Stockholm Declaration and the Rio Declaration with the respective foci falling on environmental protection and economic development.³¹⁸ As pointed out in principle 2 of the Stockholm Declaration, resource sovereignty also relates to encouraging states to seek appropriate regulatory instruments and practices regarding the “sustainable management”³¹⁹ of the use of natural resources. The definition of “sustainable use”, as contained in the CBD is that it entails: “the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biodiversity, thereby maintaining its potential to meet the needs of the present and future generations”.³²⁰ This definition clearly links sustainable use with the principle of equity and the eradication of poverty.

3.5.2 *The principle of equity and the eradication of poverty*

With reference to the principle of equity, it is common ground that the resources of the earth belong to all generations. Being a principle central to the attainment of sustainable development, equity should be seen to include both inter-generational equity³²¹ and intra-generational equity.³²² This principle, which is closely related to the sustainable use of natural resources, lays down that while the present generation

³¹⁶ Schrijver “Permanent Sovereignty over Natural Resources” 5 – 6.

³¹⁷ This responsibility is included in various treaties, including the *UN Convention on the Law of the Sea*, 1982 (UNCLOS), the UNFCCC, and the *Convention on Biological Diversity*, 1992 (CBD).

³¹⁸ Principle 21 of the Stockholm Declaration provides for States having the right to exploit their own resources pursuant to their own environmental policies. Principle 2 of the Rio Declaration goes a step further by placing the exercise of resource sovereignty not only in an environmental but also a developmental context.

³¹⁹ The “sustainable management” of the use of natural resources should be seen to include, among others: long-term natural resource planning and management systems, modelling to estimate or predict “sustained yield” or thresholds for resource collapse, as well as joint international monitoring systems.

³²⁰ Article 2 of the CBD.

³²¹ This principle entails that every generation, by virtue of its own effort and responsibility, must secure a proportionate share in the common good of the human species. See Aguis “Obligations of Justice” 10.

³²² The term can be formulated as the obligation “to ensure a just allocation of the utilisation of resources among human members of the present generation, both at the domestic and global levels.” See Hepburn and Khalfan “The Principle of Equity and the Eradication of Poverty” 5.

has a right to use and enjoy the resources of the earth, it is under an obligation to take into account the long-term impact of its activities and to sustain the resource base and the global environment for the benefit of future generations of humankind.

The principle of equity and poverty eradication are considered to be emerging principles of international law and relate to the balancing of interests among members of the current generation as well as between current and future generations. They relate to the inclusion of both the principles of inter-generational equity and intra-generational equity under the umbrella term of equity. Inter-generational equity is defined in a variety of ways, one of which involves viewing members of the current generation as holding the earth in trust for future generations while at the same time benefiting from our use of it.³²³ Both the Stockholm Declaration and the Rio Declaration refer to the principle of inter-generational equity, which has found general recognition in various fields of law³²⁴ But the status of the principle of inter-generation equity is uncertain. Schrijver refers specifically to the decision of the Supreme Court of the Philippines in the *Minor Oposa* case, when it provided *locus standi* and acceded to claims on behalf of children and future generations against drastic deforestation plans and logging licences.³²⁵ This decision, however ground-breaking, does not confer legal status on the principle of inter-generational equity, and it therefore remains at most an emerging principle of international law. Intra-generational equity, on the other hand, has received such an inadequate follow-up in practical terms that Schrijver is of the opinion that it occupies too little ground in international law and international relations to even qualify as an emerging new principle. The references to the poverty eradication component of this principle made by international instruments in the fields of environmental,

³²³ Brown-Weiss *In Fairness to Future Generations* 123, Redgwell C *Intergenerational Trusts and Environmental Protection* 68; and Scholtz 2008 *Netherlands International Review* 325.

³²⁴ Principle 1 of the Stockholm Declaration refers to a solemn responsibility to protect and improve the environment for present and future generations. The Rio Declaration in principle 2 includes the objective to equitably meet the developmental and environmental needs of present and future generations. Inter-generational equity is a recognised principle in the law of the sea, outer space law, international wild-life law and international environmental law. See Schrijver "Permanent Sovereignty over Natural Resources" 240.

³²⁵ Schrijver "Permanent Sovereignty over Natural Resources" 240.

developmental, human rights and economic law are influenced greatly by the definition of sustainable development.³²⁶

3.5.3 *The principle of common but differentiated responsibilities*

In contrast to the status of the principle of equity and poverty eradication, the principle of common but differentiated responsibilities (CBDR) is firmly rooted in international human rights law, international trade law and international environmental law.³²⁷ It evolved from the notion of the common heritage of mankind and is a particular manifestation of general principles of equity in international law.³²⁸ In essence, this principle consists of two fundamental components, namely common responsibility on the one hand and differentiated responsibility on the other. The Rio Declaration states that principle of CBDR pertains moreover to considering different states' contribution to global environmental degradation and goes further to lay the brunt of the responsibilities at the door of developed states.³²⁹ According to the interpretation of the principle as contained in the Rio Declaration, the common responsibility component relates to the responsibility of developed states in promoting global sustainable development.³³⁰ Differentiated responsibility, on the other hand, relates to the heavier burden placed on developed states on account of the superior technologies and financial resources they command. In the context of

³²⁶ The principle of poverty eradication enjoys attention in terms of the provisions of the JPOI and the ICESCR. According to the JPOI, poverty has various manifestations, including lack of income and productive resources sufficient to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments; and social discrimination and exclusion. It is also characterised by a lack of participation in decision-making and in civil, social and cultural life. See Chapter II of the JPOI. The JPOI further states that the eradication of poverty is essential to the fulfilment of the goal of sustainable development. See Paragraph 1 of the JPOI. The ICESCR on the other hand defines poverty as "the lack of basic capabilities to live in dignity" and states that the rights referred to in connection with the principle of poverty eradication should be basic human rights, which include the right to health, education, development, food, water and housing. See Paragraphs 7 and 8 of the Report of the Committee on Economic, Social and Cultural Rights, Poverty and the ICESCR.

³²⁷ See in this regard French 2000 *International and Comparative Law Quarterly* 49 36 – 37.

³²⁸ Sands *Principles of International Environmental Law* 217.

³²⁹ Principle 7 of the Rio Declaration.

³³⁰ The common responsibility resting on States comes into play where resources are shared. under the control of no state, or under the sovereign control of a state but subject to a common legal interest such as biodiversity. See Hepburn and Ahmad "*The Principle of Common but Differentiated Responsibilities*" 3.

environmental problems specifically, the principle of CBDR translates into the imposition of differentiated environmental obligations upon states in relation to the degree to which they are thought to be responsible for environmental problems.

Climate change provides an excellent practical example of the differentiated responsibilities resting on states in relation to a common environmental challenge. The UNFCCC and its Kyoto Protocol place the duty on industrialised countries to mitigate GHG emissions to such an extent as to return to 1990 emission levels by the end of 2012. The same duty is not placed on developing countries. The reason for the differentiation is two-fold. In the first instance, industrialised countries are responsible for the bulk of global GHG emissions and should therefore bear the brunt of the burden for combating climate change. Secondly, and in reference to the difference in capacity in responding to climate change, developing countries (especially LDCs) lack the resources and technologies needed for responding to climate change.

3.5.4 The principle of precautionary approach to human health, natural resources and ecosystems³³¹

The precautionary principle contained in the New Delhi Declaration builds upon principles 15 and 19 of the Rio Declaration, which state that where there is a threat of serious or irreversible damage, the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. The precautionary principle embodies an increasing emphasis on the duty of states to take preventive measures to protect the environment - the most well-known method prescribed being environmental impact assessments.³³² In terms of the New Delhi Declaration, the implementation of the precautionary principle entails that the proponent of activities which might lead to significant, serious or irreversible harm is obliged to take measures to prevent this damage even if there is

³³¹ Hereinafter the term "precautionary principle" will be used when referring to the principle of the precautionary approach to human health, natural resources and ecosystems.

³³² Schrijver "Permanent Sovereignty over Natural Resources" 241.

a lack of full scientific certainty as to the existence and severity of the risk.³³³ The principle of precaution is based on the premise that harm should be prevented before it occurs, and that the precautionary measures taken should be in proportion with the potential damage.³³⁴ In terms of the New Delhi Declaration, a precautionary approach with regard to human health, environmental protection and the sustainable utilization of natural resources should include accountability for the harm caused, planning based on clear criteria and well defined goals, and the consideration of all possible means of preventing the harm.³³⁵

3.5.5 *The principle of public participation and access to information and justice*

Echoing the call for public participation and access to information and justice as contained in the Rio Declaration, ILA principle 5 coincides with the call for more participatory processes in national and international decision-making.³³⁶ Practical implementation of the principle in international environmental law is evident from texts such as the UN Economic Commission for Europe's *Treaty on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*, 1998 (Treaty of Aarhus). The New Delhi Declaration acknowledges that the participation of the public³³⁷ in policy formulation is essential to sustainable development and good governance as it is a condition of responsive, transparent and accountable government. This principle enjoys substantial support in various international legal instruments³³⁸ and finds its basis in the fundamental

³³³ Cordonnier Segger and Khalfan *Sustainable Development Law* Part 4 3.

³³⁴ Hickey, Jr JE and Walker VR "Refining the Precautionary Principle in International Environmental Law" 1995 *Virginia Law Journal* 436.

³³⁵ Cordonier Segger MC and Khalfan A *Sustainable Development Law* Part 4 3.

³³⁶ Schrijver "Permanent Sovereignty over Natural Resources" 243.

³³⁷ The public, as understood in the context of this principle, is a community of people and should not be seen as an explicit reference to the public of a certain State, nor of people possessing citizenship rights to a specific place. The public is differentiated from the State in that people can be State actors and operate within the interests of that State, while at the same time belonging to the public, in which capacity they can freely express their own ideas. In the context of sustainable development the "public" should therefore be seen to include individuals, trade unions, non-governmental organisations, business organisations and other civil society organisations. See Hepburn and Khalfan "The Principle of Equity and the Eradication of Poverty" 3.

³³⁸ In terms of article 12 of ICESCR every citizen has the right to participate in "the conduct of public affairs, directly or through freely chosen representatives." The ICESCR also illustrates the importance of access to information, by stating in article 13 that "education shall enable all

human right³³⁹ to hold and express opinions and to seek, receive and impart ideas. In the context of the promotion of sustainable development, public participation and access to information hinge upon ensuring that all persons have access to appropriate, comprehensible and timely information held by governments on economic and social policies regarding the sustainable use of natural resources and the protection of the environment. Furthermore, access to justice would entail access to appropriate judicial or administrative relief where parties have been denied their right to participation or access to information.

3.5.6 *The principle of good governance*

The principle of good governance is perceived as a normative principle of administrative law, which obliges the state to perform its functions in a manner that promotes the values of efficiency, non-corruptibility, and responsiveness to civil society.³⁴⁰ The Millennium Declaration³⁴¹ draws the link between transparency as an element of good governance on the one hand and the promotion of sustainable development and the achievement of the MDGs on the other.³⁴²

According to the New Delhi Declaration, good governance is essential to the progressive development and codification of international law relating to sustainable development.³⁴³ The New Delhi Declaration commits states and international organizations to adopting democratic and transparent decision-making procedures and financial accountability, to taking effective measures to combat corruption, to respecting the principles of due process, to observing the rule of law and human

persons to participate effectively in a free society". Reference to this principle can also be found in the preamble of the Stockholm Declaration; article 1 of the Declaration on the Right to Development; and principles 5, 10, 19 – 21 of the Rio Declaration.

³³⁹ The Universal Declaration refers in article 21 to everyone's "right to take part in the government of his country, directly or through freely chosen representatives", the "right of equal access to public service in his country" and that "the will of the people shall be the basis of the authority of government".

³⁴⁰ Rosenau *Along the Domestic-Foreign Frontier* 149-149.

³⁴¹ GA Res. 55/9, UN GAOR, 2000.

³⁴² Paragraph 13 of the Millennium Declaration.

³⁴³ Cordonier Segger and Khalfan *Sustainable Development Law* 171.

rights, and to implementing an internationally acceptable public procurement approach.³⁴⁴ This principle therefore binds states to democratic and transparent decision-making, probity, respect for the rule of law and human rights, and is closely related to the principle of public participation in governance, access to information, and justice for all.³⁴⁵

3.5.7 *The principle of integration and interrelationship in relation to human rights and social, economic and environmental objectives*³⁴⁶

The notions of integration and interrelationship lie at the very core of the concept of sustainable development and could therefore be described as being fundamental to its existence.³⁴⁷ In general terms, the integration principle implies the need for States to take into account the interdependence of economic, environmental, social and human rights issues, and furthermore entails the necessity of reconciling, accommodating and harmonising the priorities, concerns and norms emanating from each area.³⁴⁸ The interrelationship among the three pillars of sustainable development law influences and informs the elaboration, interpretation and application of other principles of sustainable development law by providing a conceptual framework for integrated thinking in international law relating to sustainable development.³⁴⁹ It could be argued that the integration principle should accordingly be labelled as a “core principle” of sustainable development.

³⁴⁴ Paragraph 6(1) New Delhi Declaration.

³⁴⁵ Commission on Global Governance *Our Global Neighbourhood*; and Sands P “International Law in the Field of Sustainable Development” 1994 *British Yearbook of International Law* 355 – 360.

³⁴⁶ Hereinafter the term “integration principle” will be used when referring to the principle of integration and interrelationship in relation to human rights and social, economic and environmental objectives.

³⁴⁷ Voigt *Sustainable Development* 224.

³⁴⁸ Jodion *The Principle of Integration* 4 – 5.

³⁴⁹ In the *Case Concerning the Gabčíkovo-Nagymaros Project* the International Court of Justice (ICJ) highlights the importance of the integration principle, stating in its judgment that the “need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development” (1997 I.C.J Rep. 78 140 9). See Cordonier Segger and Khalfan *Sustainable Development Law* 102.

The principles comprising the normative framework of sustainable development should be seen to embody a global consensus on the norms which should underpin activities related to the promotion of sustainable development in all areas of human endeavour. These activities include but are in no way restricted to the formulation of law and policy on matters related to the promotion of sustainable development whether at national, regional or international level.

These developments notwithstanding, the actual implementation of the tenets of sustainable development has not taken place. This is due in part to the fact that the concept of sustainable development could not reconcile the conflict between the desire for economic development on the one hand and the desire to preserve the environment on the other. In essence, the concept of sustainable development depends on a belief that there are synergies between economic development and environmental protection, but in practice the existence of these synergies is less than obvious.³⁵⁰ The clash between the normative development of the concept of sustainable development and its practical implementation is evident, considering the attention drawn to it at various international development forums.³⁵¹ The practical implementation of sustainable development is the next phase in its evolution – a phase which may prove challenging if not impossible.

3.6 *Rio+20 and beyond: the implementation of sustainable development*

In the run-up to and immediate aftermath of the Rio+20 Summit, the issue of the implementation of sustainable development came to the fore. The UN General Assembly, which convened the Rio Summit, set as its objective the assessment of the progress made to date and the remaining gaps in the implementation of the

³⁵⁰ Vinuales 2013 *Review of European, Comparative & International Environmental Law* 6.

³⁵¹ GA Resolution S/19-2, 28 June 1997, Annex, Programme for the Further Implementation of Agenda 21 paragraph 9; Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002, U.N. Doc. A/CONF.199/20, in particular Resolution 2, 'Plan of Implementation of the World Summit on Sustainable Development'; and GA Resolution A/RES/66/288, 11 September 2012, Annex, 'The future we want'.

outcomes of the major summits on sustainable development.³⁵² As implementation becomes more urgent, the very strength of the concept of sustainable development is turning into its main weakness. The concept's major strength and weakness are identical: its ability to encompass very different issues without clarifying the relations among them. The concept was vague enough to bring all states and other stakeholders to the negotiating table and was therefore very successful in managing the political collision between the developers and the environmentalists throughout the 1980s and the 1990s. While it was a formidable tool to facilitate normative developments, it was incapable of facilitating the next phase, which is implementation.³⁵³

Vinuales refers to sustainable development as a "diplomatic trick" to bring diverse stakeholders together under the same banner – a banner which, in order to be effective, had to have very limited content.³⁵⁴ While the description of the concept was elaborated upon, so that "meeting the needs of the present without compromising those of future generations"³⁵⁵ and development inclusive of environmental, social and economic dimensions were included,³⁵⁶ practical strategic priorities were and still are lacking. In short, the creation of an all-encompassing concept, which was necessary to accommodate the disparate purposes of all of the groups of stakeholders, has made it virtually impossible to set clear priorities for action.³⁵⁷ It is not clear that implementation can take place without lifting the veil drawn by sustainable development over the real trade-offs between economic and environmental considerations. The occurrence of the 2008 global financial crisis highlights the existence of the problem. Post-2008, industrialised countries have expressed clear economic priorities which clearly indicate a shift away from environment considerations towards economic development and growth. As economic considerations become increasingly important, the synergy between the

³⁵² 'Implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21 and the outcomes of the World Summit on Sustainable Development', U.N. Doc. A/RES/64/236

³⁵³ Vinuales 2013 *Review of European, Comparative & International Environmental Law* 3

³⁵⁴ Vinuales 2013 *Review of European, Comparative & International Environmental Law* 4.

³⁵⁵ See paragraph 3.3.2 above.

³⁵⁶ The three pillars are environmental protection, economic development and social development, as stated in GA Resolution S/19-2, 28 June 1997, Annex, "Programme for the Further Implementation of Agenda 21", Statement of Commitment, paragraph 3.

³⁵⁷ Lowe "Sustainable Development and Unsustainable Arguments" 19-37.

environment and development assumed to exist in the conceptualisation of sustainable development appear all the more fictitious. It might, in some instances, be more appropriate to refer to what is presented as "synergy" between the environment and economic development as an attempt to identify the environmental dimensions of policies adopted for predominantly economic reasons.³⁵⁸ Vinuales concludes that sustainable development is no longer capable of guiding global environmental governance, as it is ill-suited to taking clear stances where there are trade-offs between environmental, social and economic considerations or to setting clear strategic priorities for action.³⁵⁹

The viewpoint that sustainable development has reached its full potential in facilitating global attempts to promote social, economic and environmental development, as put forward by Vinuales, implies that a new model for enforcement is needed and subsequently proposes an alternative model to identify the specific priorities that need to be addressed in order to put global environmental governance on a more effective path.³⁶⁰ However, the question of how AU policy-makers should address the issue of finding some legally binding foundation on which to base their efforts to promote sustainable development still remains. In the opinion of the author, the nature of the relationship between sustainable development, the MDGs and international human rights provides the necessary legal basis.

3.7 Conclusion

Sustainable development and the principles comprising its normative framework form part of soft law and as such are not legally binding upon states.³⁶¹ This does not mean that sustainable development lacks persuasive force in the international law-making process – a fact which is highlighted by the normative developments

³⁵⁸ Bernstein *The Compromise of Liberal Environmentalism* 23.

³⁵⁹ Vinuales 2013 *Review of European, Comparative & International Environmental Law* 9

³⁶⁰ In this regard Vinuales identifies four Gordian knots, namely: participation, differentiation, decarbonisation, and innovation and technology diffusion. See Vinuales 2013 *Review of European, Comparative & International Environmental Law* 9.

³⁶¹ See in general paragraphs 3.2 and 3.4 above.

brought about by the evolution of the concept.³⁶² These normative developments, however important, do little to address the challenges related to its implementation. The non-binding nature of sustainable development and its implementation, or lack thereof, leads to the conclusion that a new model for implementation is needed. This model could take the form of identifying specific priorities to focus global efforts on promoting sustainable development (as prescribed by Vinuales) or could take the form of finding a legal basis for its practical implementation.³⁶³ With reference to the second method, the following hypothesis is put forward. The nature of the relationship between sustainable development, the MDGs and international human rights forms the conceptual basis for proposing existing human rights as the legal basis for promoting sustainable development in Africa by means of increased access to energy. This hypothesis will be elaborated upon in the next chapter.

³⁶² For an overview of the international conferences and their instruments see paragraphs 3.2.1 – 3.2.5 above.

³⁶³ See paragraph 3.6 above.

4 Human rights as the legal basis for promoting sustainable development via increased access to energy in Africa

4.1 Introduction

Sustainable development is viewed by many as a comprehensive and integrated concept which hosts supports the right to development as well as the right to an adequate environment.³⁶⁴ It therefore inherently contains and reflects the human rights agenda. The inference can be drawn that the promotion of sustainable development is dependent upon the realisation of the right to development and/or the right to an adequate environment. The inverse is also true, namely that the realisation of the right to development and/or adequate environment as inalienable human rights serves to promote sustainable development. The positive impacts of increased access to modern energy on the promotion of sustainable development by means of the achievement of the MDGs have been established.³⁶⁵ This, combined with the inter-related nature of the relationship between sustainable development and the MDGs, leads to the following hypothesis: If access to modern energy is indispensable to the promotion of sustainable development and/or the achievement of the MDGs, it is also indispensable to the realisation of the above-mentioned human rights – specifically the right to development.

The right to development is an inalienable human right in Africa³⁶⁶ and entails that all human beings are entitled to social, economic, cultural and political development in which all human rights and fundamental freedoms can be enjoyed.³⁶⁷ The right to

³⁶⁴ Churchill R "Environmental Rights in Existing Human Rights Treaties" 89; McGoldrick 1996 *International and Comparative Law Quarterly* 45 796-818; and Schech and Haggis *Culture and development* 55.

³⁶⁵ See in general Chapter 3 of this thesis.

³⁶⁶ Article 24 of the Banjul Charter.

³⁶⁷ Chowdhury ea *The Right to Development in International Law*; Malhotra "Right to Development: Where are We Today?" 132; Sengupta 2002 *Human Rights Quarterly* 837, 859; and Tadeg MA "Reflections on the Right to Development" 2010 10 *African Human Rights Law Journal* 80.

development is however not a recognised international human right as it was coined in the (non-binding) *Declaration on the Right to Development*, 1986 (Declaration on the Right to Development).³⁶⁸ Human rights as a collective body of rights include economic, social and cultural rights as well as civil and political rights. The normative framework within which these rights exist includes legally binding and non-binding international and regional legal instruments.³⁶⁹ Both the promotion of sustainable development and the realisation of the right to development are objectives of the AU. However, as indicated in Chapter 3 above, certain challenges surrounding the implementation of sustainable development necessitate the use of another model for implementation.³⁷⁰ It is in this regard that the link between the promotion of sustainable development and the realisation of the right to development at the AU level is especially relevant. The hypothesis is put forward that existing AU human rights should be interpreted in such a way as to derive from them further human rights congruent with the realisation of the existing human rights and the subsequent promotion of sustainable development. Furthermore, mindful of the positive impact access to modern energy would have on the promotion of sustainable development, the author postulates that a right to energy as an AU human right should be derived from the existing AU human rights. The interpretation of specific provisions of the ICESCR and the Banjul Charter will be used in subsequent sections as a conceptual basis for an argument in favour of distilling a right to energy at the AU level.

The main aim of this chapter relates to deriving a right to energy from the existing AU human rights and to proposing that the right to energy so derived provides the legal basis for the AU normative response of increased access to modern energy. In the

³⁶⁸ Article 1(1) of the Declaration on the Right to Development.

³⁶⁹ Other international human rights instruments include the *Covenant on Civil and Political Rights*, 1966; the *International Convention on the Elimination of All Forms of Racial Discrimination*, 1965; the *Declaration on Social Progress and Development*, 1969; the *Convention on the Elimination of All Forms of Discrimination against Women*, 1979; the *Declaration on the Right to Development*, 1986; the *Convention on the Rights of the Child*, 1989; and the *International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families*, 1990. With reference to other regional legal instruments referring to economic, social and cultural rights, the *Additional Protocol in the Area of Economic, Social and Cultural Rights to the American Convention on Human Rights*, 1988 (Protocol on San Salvador); and the *European Social Charter*, 1996 are the most prominent. See Office of the UN High Commissioner for Human Rights *Economic, Social and Cultural Rights Handbook for National Human Rights Institutions* (UN Publications, New York and Geneva, 2005) 3.

³⁷⁰ See paragraph 3.4 above.

course of the chapter the following topics will warrant further investigation and discussion. To start with, an overview of what should be included in the AU normative response to the challenges posed by lack of access to modern energy will be provided. This will be undertaken in order to highlight the synergistic relationship between increased access to modern energy, the promotion of sustainable development, the achievement of the MDGs and the realisation of human rights. Following this, the nature of the relationship between the MDGs and human rights will be analysed. In this regard, the legal status of the MDGs as well as the indivisible nature of human rights will prove relevant and will accordingly be analysed. This will be followed by a brief overview of the evolution of the right to development and its role in establishing the nature of international human rights as indivisible and universal. The link between increased access to modern energy and the realisation of the right to development (as an inalienable human right) will provide the backdrop against which to identify and discuss energy poverty as a human rights challenge. Explicit AU human rights will then be interpreted so as to indicate that their realisation depends, in some instances, upon the recognition of other implicit human rights. To this end, articles 22 and 24 of the Banjul Charter will be interpreted to include the right to energy as a human right congruent to the right to development and the right to a generally satisfactory environment favourable to development. The realisation of the proposed right to energy should manifest in increased access to modern energy sources capable of promoting sustainable development – in other words – sustainable energy. After proposing a definition of what is to be understood under the term sustainable energy, the chapter will note that the inclusion of nuclear energy in a diversified African energy mix is mandated by the Abuja Treaty. In the final instance, the potential of nuclear energy to qualify as sustainable energy source will be scrutinised against a series of sustainability indicators.

4.2 Responding to the challenges posed by the lack of access to modern energy

The question now remains: what must be done in order to put the African continent on the path towards achieving the goals set for modern energy access? In terms of

the energy poverty challenges faced by the AU, specified actions are needed in order to stay on course for the achievement of the MDGs by 2015. Increasing access to modern energy services requires, first, the integration of energy access into national development strategies, preferably with support from international development organisations such as the UN World Commission on the Environment and Development (UNCED), the UN Department of Economic and Social Affairs (UN DESA), and the UN Commission on Sustainable Development (UNCSD). Furthermore, strong and sustainable financial, institutional and technology frameworks must be set up and capacity building must be undertaken at the local and regional levels.³⁷¹

Providing universal access to modern energy services depends upon recognition by the international community and national governments of the urgency of the need and on long-term policy commitment as part of the development of strategic plans.³⁷² In order to provide a clear outline of what the basic components of an AU strategic development plan regarding access to modern energy services should entail, a distinct methodology will be used. It becomes apparent that the situation in the energy sector calls for decisive choices and sustained commitment by policymakers on topics such as removing institutional and regulatory barriers to development, designing and applying subsidies, ensuring local involvement in the design and delivery of energy services, and protecting the poor during energy reforms. It is imperative that the role of energy and the costs of energy services should be factored into overall national development strategies, including poverty reduction strategies and MDG strategies and other development goals. On the international level, many countries have started to factor energy considerations and service delivery strategies into national development frameworks, due to the critical importance of energy as a facilitator of sustainable development. Taking into account the impact of the lack of access to modern energy services in Africa on the

³⁷¹ Greater regional cooperation can avoid unnecessary expansion of electricity generation capacity in the future. Coordination within a country and between regional governments can greatly enhance the efficacy of electricity projects and contribute to wider benefits: in Africa in particular, regional power pools appear to make a valuable contribution to regional integration, which is widely perceived as one of the best engines of Africa's development. IEA World Energy Outlook 2010 36.

³⁷² IEA World Energy Outlook 2010 37.

achievement of the MDGs and the promotion of sustainable development, it would be productive to adopt such a policy in the AU as well.

The link between access to modern energy, the promotion of sustainable development and the achievement of the MDGs is evident. There is little doubt that the continued sustainable development of the African continent is heavily dependent upon increasing access to modern energy sources – as illustrated by the UMEAC. What is needed at the AU level is cooperative regional action on formulating energy policy capable of harnessing energy expansion as an instrument to eradicate poverty and to achieve the MDGs in order to ultimately promote sustainable development. Cooperative regional action in this context refers to regional integration and its contribution to facilitating the formulation and implementation of coordinated regional policies on aspects of common interest among member states – including energy access.

4.3 MDGs and international human rights

While the MDGs, individually and collectively, encapsulate the social, economic and environmental aspects of sustainable development, it may be argued that the three dimensions are represented in an unbalanced way and without strong links among them.³⁷³ Therefore, while the existence of a relationship between the MDGs and sustainable development is not denied, the nature of the relationship remains contentious. It is proposed that in order to bring the MDGs in line with the concept of sustainable development, thereby fostering the synergies between the two development initiatives, the complexity of the notion of sustainable development and the linkages among its many manifestations, which complexity is also reflected in the

³⁷³ For example, while the social objective of the MDG of reducing hunger and ensuring food security is duly recognised, the environmental dimension of this MDG is not obvious. Achieving the eradication of hunger in a sustainable fashion will most certainly also have an environmental dimension, as it entails maintaining environmental resources such as land and water through sustainable agricultural practices. See UN System Task Team on the Post-2015 UN Development Agenda *Building on the MDGs to bring sustainable development to the post-2015 development agenda* Thematic Think Piece by the ECE, ESCAP, UN DESA, UNEP and UNFCCC 2012 4.

MDGs, needs to be addressed. Stated differently, a paradigm shift regarding viewing the focus of development through overtly economic, environmental or social lenses can be truly possible only once sustainable development as a multi-dimensional concept is considered as part of a multi-dimensional development agenda. This would no doubt result in the formulation of a post-2015 development agenda based on a synergistic conceptualisation of sustainable development as derived from the multi-dimensional nature of the MDGs. With reference to the multi-dimensional nature of the concept of sustainable development, its relationship with the MDGs on the one hand and human rights on the other is relevant.

While the MDGs and international human rights exist as exclusively individual constructs within international law, a separate discussion of their respective relationships to the sustainable development agenda might prove tautological. As will be elaborated upon in the next chapter, the relationship between the MDG initiative and human rights are mutually reinforcing in terms of their respective objectives and processes.³⁷⁴ To this extent, the 2003 UNHDR stated that the MDGs not only "mirror the fundamental motivation for human rights", but they also "reflect a human rights agenda – rights to food, education, health care and decent living standards."³⁷⁵ It is therefore relatively easy to deduce that a relationship between the MDG initiative and international human rights indeed exists. The nature of this relationship in relation to the respective contribution of the MDGs and human rights to the promotion of sustainable development provides the conceptual basis for the following hypothesis: The legal basis for the promotion of sustainable development via increased access to modern energy already exists within existing international and regional human rights.

The MDGs are widely considered to be among the most prominent initiatives on the global development agenda and have become the most important focus of

³⁷⁴ The UN High Commissioner for Human Rights reported in 2002 that: "the strategies to reach the Millennium human rights goals and the MDGs reinforce and complement each other". See Report of the UN High Commissioner for Human Rights to the Economic and Social Council, U.N. ESCOR, 40th Session, Agenda Item 14(g), paragraph 10. U.N. Doc. E/2002/68 (2002).

³⁷⁵ See paragraphs 27 and 29 of the UN Development Programme, Human Development Report 2003.

international efforts to promote human development and reduce poverty.³⁷⁶ The MDGs represent a major departure from previous efforts to set development objectives, which serves to explain their popularity with international development agencies and the governments of developing countries and regions alike. What sets the MDGs apart from other development initiatives is in the first instance, the fact that the Goals are limited and selective in their scope, thus prioritising certain development objectives. Secondly, the MDGs are designed to be measured in order to provide a basis for accountability.³⁷⁷ A third reason relates to the fact that the MDGs are time-bound, which translates into bringing precision to goals which might in other circumstances be said only to be subject to “progressive realisation”.³⁷⁸ Furthermore, an extensive institutional apparatus has been set up to promote their achievement.³⁷⁹ And finally, the MDGs seek to promote the development of “a global partnership”, which entails industrialised countries providing significant additional resources to developing countries.³⁸⁰ The Goals may therefore be labelled as representing a quest to achieve what has not been achieved before, namely the transformation of international development expectations and results by virtue of a concerted global campaign aimed at addressing prioritised development needs.

In assessing the degree of success the MDGs are perceived to be able to achieve as international development initiatives seeking to promote global sustainable development, the importance of the international human rights regime cannot be denied. Evaluating the role of the MDGs as measures for development and evaluating the extent to which (congruent) human rights are being realised would be two different but equally relevant tasks that should be undertaken in tandem. Firstly, the nature of the relationship between the MDGs and human rights need to be assessed against the backdrop of the interplay between the two initiatives in

³⁷⁶ See Millennium Declaration.

³⁷⁷ In order to make the MDGs more precise and their achievement more measurable they are accompanied by a set of eighteen targets and forty-eight indicators. For an overview of the targets and indicators, see in general the Millennium Declaration.

³⁷⁸ Alston P “Ships Passing in the Night: The Current State of the Human Rights and Development Debate Seen Through the Lens of the Millennium Development Goals” 2005 *Human Rights Quarterly* 756.

³⁷⁹ This includes: the Millennium Project; the Millennium Campaign; efforts to produce National MDG Reports; and the intensely focused efforts by major international development agencies.

³⁸⁰ Alston 2005 *Human Rights Quarterly* 756 – 757.

contemporary international law. From the outset, the proposition is made that the MDG initiative is indeed relevant to human rights and *vice versa*, which points towards a relationship existing between the two initiatives. This stems from the consideration that the broader international legal framework of human rights features prominently in the Millennium Declaration itself, although not in specific Goals. This translates into a situation where the MDGs are implemented in a human rights-sensitive manner and applying human rights norms and techniques as means by which to promote the achievement of the Goals.³⁸¹ Of specific relevance to the current research is the importance of the MDG initiative in human rights terms, as it provides an ideal lens through which to assess the current status of the on-going debate over human rights and development. With reference to the nature of the relationship between the MDGs and human rights, specific attention will be paid to social and economic rights as embodied in international and regional human rights instruments and the extent to which the MDGs reflect these rights. Closely related to this topic is the status of the MDGs and human rights and, more specifically, the status of the MDGs as part of customary international law.

4.4 The legal status of the MDGs and human rights

The MDGs as contained in the Millennium Declaration represent a set of political commitments undertaken by states, and they are considered to be the single most important focus of international efforts to promote human development.³⁸² Strictly speaking, the MDGs do not generate any legally binding obligations and are therefore considered to fall into the category of soft law. For the purposes of this chapter, the topic of the legal status of the MDGs revolves around the question of whether the Goals have been included into what is commonly referred to as customary international legal norms. Customary international legal norms refer to legal instruments or concepts which, although not necessarily codified in treaty form, have become sufficiently widely accepted in practice that they are arguably binding upon governments despite their original intent not to be binding. The frequent

³⁸¹ Alston 2005 *Human Rights Quarterly* 757.

³⁸² Alston 2005 *Human Rights Quarterly* 755.

reiteration of governments' commitment to the MDGs might be seen to constitute the basis for arguing that the Goals have indeed assumed the status of a binding legal obligation.³⁸³ This argument correlates with the viewpoint of many commentators regarding the legal status of the Universal Declaration. The Universal Declaration was adopted on the agreed basis that it did not generate any legally binding obligations, but was then claimed to have attained the status of customary law as a result of being so consistently endorsed and invoked.³⁸⁴

Regarding the legal status of the MDGs as international customary legal norms, several questions arise. In the first instance, do the various affirmations of the MDGs truly satisfy the criteria³⁸⁵ required for a norm to become part of customary law? The manner in which this question is dealt with in reference to human rights might prove insightful. Although a number of human rights norms are widely agreed to have achieved this status,³⁸⁶ some difficulty still remain regarding the application of the traditional criteria in evaluating the status of human rights norms.³⁸⁷ According to Tomuschat, the human rights which qualify as universal customary legal norms³⁸⁸ should not be based on "actual stock-taking of the relevant State practice but rather on deductive reasoning: if human life and physical integrity were not protected, the entire idea of a legal order would collapse."³⁸⁹ While the application of this test, which is not widely accepted, points towards the MDGs' essential role in protecting human life and physical integrity and therefore qualifying as a customary norm, the problem still remains that it does not include express reference to economic and

³⁸³ In recent years various heads of states and/or governments have affirmed their commitment to the MDG initiative in the form of the *Millennium Declaration*, 2000; the *Johannesburg World Summit on Sustainable Development*, 2002 and the *Monterrey Consensus*, 2002.

³⁸⁴ Alston P and Simma B "The Sources of Human Rights Law: Custom, Jus Cogens, General Principles" 1992 *Australian Yearbook of International Law* 82.

³⁸⁵ The criteria being: consistent state practice combined with *opinio juris* or an intention to be bound on the part of governments following the norm. See Alston 2005 *Human Rights Quarterly* 772.

³⁸⁶ The International Court of Justice cited the prohibition of genocide, protection from slavery and racial discrimination as examples. See *Barcelona Traction, Light and Power Company, Limited* (Belgium v Spain) 1970 I.C.J. 3 paragraph 34.

³⁸⁷ For an overview of the challenges related to applying the traditional criteria for qualifying as a customary international legal norm to human rights see Roberts "A Traditional and Modern Approaches to Customary International Law: A Reconciliation" 2001 *American Journal of International Law* 757.

³⁸⁸ These include the right to life, the prohibition of torture, the protection of personal freedom and the prohibition of racial discrimination.

³⁸⁹ Tomuschat *Human Rights: Between Idealism and Realism* 23.

social rights. As the MDGs relate most closely to economic and social rights, most commentators would conclude that because the latter have not become part of customary law, the former could not have either.³⁹⁰ While this argument holds some truth, it may also be viewed as flawed, considering that while social and economic rights possess normative strength derived from the multitude of treaty provisions that address them, governments regularly resist their practical realisation. In seeking to rebut customary legal status, governments most commonly rely on the second criteria as defining qualification as a customary norm, the argument being that their (governments') lack of intention to be bound by social and economic rights results in terminating any customary legal status. Therefore, while state practice points towards the acceptance on the part of governments of the responsibility of realising social and economic rights, the commitments made by them to do so were not made with the intention of being bound by them.³⁹¹

The same argument is *mutatis mutandis* applicable to the perceived international legal status of the MDGs. Alston suggests that the application of a slightly different form of the Tomuschat test might prove helpful in providing a more concise take on the status of the MDGs in international law. According to the first criterion of this revised test, no right should be excluded as forming part of international law which is indispensable to a meaningful notion of human dignity (upon which human rights are based).³⁹² Setting this criterion as a requirement for qualifying as international legal norm results in the submission that at least some of the MDGs reflect norms of customary international law.³⁹³

³⁹⁰ Alston 2005 *Human Rights Quarterly* 773.

³⁹¹ Alston 2005 *Human Rights Quarterly* 773.

³⁹² Tomuschat goes further to stipulate that the realisation of the right in question must be demonstrably within the reach of the relevant government, given reasonable support from the international community. This support should be seen to include not only financial support but also legal and technical assistance from other states as well as international organisations. See Alston 2005 *Human Rights Quarterly* 774; and Tomuschat *Human Rights: Between Idealism and Realism* 47.

³⁹³ Halving the number of people living in hunger, achieving universal primary education, eliminating gender disparities in education, assuring only minimum rates of child mortality, assuring low levels of maternal mortality, and taking essential measures to combat HIV/AIDS and other major diseases are all quantifiable goals which, if not met, involve the denial of fundamental rights. See Alston 2005 *Human Rights Quarterly* 775.

The legal status of economic, social and cultural rights as part of the international human rights regime on the other hand is a much less contentious issue. Human rights, depending on the legal instrument containing them, are a legal statement of what human beings require to live fully human lives.³⁹⁴ Collectively they represent a comprehensive, holistic statement in which civil, cultural, economic, political and social rights are recognised as a universal, indivisible and interdependent body of rights.³⁹⁵ The indivisible and interdependent nature of all human rights means that civil, political, economic, social, and cultural rights apply to all individuals on the basis of equality and without discrimination, that they create specific governmental obligations, and that they should be claimed. This should translate into interpreting human rights as inherently permeable in nature, as opposed to the traditional viewpoint of categorising civil and political rights as separate from economic, social and cultural rights.³⁹⁶

4.4.1 *The indivisible nature of human rights*

At the international level, human rights are enshrined in the texts of the International Covenant on Civil and Political Rights (ICCPR)³⁹⁷ and the ICESCR.³⁹⁸ Although it was initially intended that a single covenant on international human rights would follow the Universal Declaration, the political atmosphere during the Cold War era resulted in the drafting of the two separate covenants.³⁹⁹ The dissatisfaction of the international community with the separation was evident considering international texts such the *Proclamation of Tehran*, 1968 which states: “since human rights and

³⁹⁴ Office of the UN High Commissioner for Human Rights *Economic, Social and Cultural Rights Handbook* 1.

³⁹⁵ This body of international human rights was foreseen by the Universal Declaration which enshrines civil and political rights and economic, social and cultural rights and was intended to be the precursor to a single human rights covenant. Political, ideological and other factors, however, precluded this and two international covenants were eventually adopted. See Office of the UN High Commissioner for Human Rights *Economic, Social and Cultural Rights Handbook* vii.

³⁹⁶ Scott D “The interdependence and permeability of human rights norms: towards a partial fusion of the International Covenant on Human Rights” 1989 *Osgoode Hall Law Journal* 851 – 878.

³⁹⁷ G.A. Res. 2200 (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 999 U.N.T.S. 171.

³⁹⁸ G.A. Res. 2200 (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3.

³⁹⁹ Sengupta A “On the Theory and Practice of the Right to Development” 2002 *Human Rights Quarterly* 839.

fundamental freedoms are indivisible, the full realization of civil and political rights without the enjoyment of economic, social and cultural rights is impossible.”⁴⁰⁰ In 1969 the *Declaration on Social Progress and Development*⁴⁰¹ further emphasised the interdependence of these two sets of rights. These statements were followed by the unqualified reaffirmation of the indivisibility thesis in the 1993 Vienna Declaration, which averred that “All human rights are universal, indivisible and interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis.”⁴⁰²

Applying the broadest possible interpretation of the indivisibility of international human rights leads to viewing “economic, social and cultural” rights and “civil and political” rights as groups of rights mutually supporting one another.⁴⁰³ The extent to which these rights indeed support one another depends heavily on the level of implementation of any one of the sets of rights or individual rights. Nickel identifies three levels of implementation, namely non-implementation (the right is unrecognised or exists only on paper), low quality implementation, and high quality implementation, which results in full realisation. In his view, the high quality implementation of human rights is the means with the end being full realisation of human rights. A right is fully implemented or has high quality implementation when all of the major threats to the right have been adequately blocked or neutralised through actions such as gaining recognition of and compliance with the right’s associated moral and legal duties, providing protections and other services, and providing legal and other remedies for noncompliance with the right.⁴⁰⁴ High quality implementation presupposes good legal and political institutions that facilitate

⁴⁰⁰ Proclamation of Tehran, proclaimed by the International Conference on Human Rights at Tehran on 13 May 1968, U.N. Doc. A/Conf.32/41, U.N. Sales No. E.68.XIV.2, endorsed by G.A. Res. 2442 (XXIII) 19 Dec. 1968.

⁴⁰¹ Declaration on Social Progress and Development, adopted 11 Dec. 1969, G.A. Res. 2542 (XXIV), U.N. GAOR 24th Sess., Supp. No. 30, at 49, U.N. Doc. A/7630 (1969).

⁴⁰² Vienna Declaration and Programme of Action, U.N. GAOR, World Conf. on Hum. Rts., 48th Sess., 22d plen. mtg., part I, 5, U.N. Doc. A/CONF.157/24 (1993), reprinted in 32 I.L.M 1661 (1993).

⁴⁰³ Nickel JW “Rethinking Indivisibility: Towards A Theory of Supporting Relations between Human Rights” 2008 *Human Rights Quarterly* 30 988.

⁴⁰⁴ Nickel “How Human Rights Generate Duties to Protect and Provide” 190.

respect and protection for peoples' rights.⁴⁰⁵ In its Preamble, the Banjul Charter expressly proclaims the indivisible nature of human rights, acknowledges the duty of the AU towards the protection and promotion of all human rights and, in this regard, establishes the ACHPR as treaty body in terms of article 30.⁴⁰⁶

4.5 The nature of the relationship between the MDGs and human rights

The UNDP in its 2000 Report refers to the relationship of the MDG agenda and human rights in the following terms:

Human development and human rights are close enough in motivation and concern to be compatible and congruous, and they are different enough in strategy and design to supplement each other fruitfully. A more integrated approach can thus bring significant rewards, and facilitate in practical ways the shared attempts to advance the dignity, well-being and freedom of individuals in general.⁴⁰⁷

It is widely accepted that despite limited reference by one initiative to the other, the MDGs and human rights are similar in a variety of ways, especially with reference to their aims, assumptions and processes.⁴⁰⁸ While it is relatively easy to indicate that a relationship between the MDGs and human rights indeed exists, the nature of this relationship warrants further investigation. In an effort to define the nature of the relationship between the MDGs and human rights, Alston puts forward the following options: that they are potentially complementary, not necessarily inconsistent,

⁴⁰⁵ The traditional distinction between human rights has indeed made way for a more contemporary view of international human rights, one in which human rights must be protected and promoted. Vasak views the promotion of human rights as primarily legislative in nature and as pertaining to legislative actions that are directed at the future of the international human rights regime. The protection of human rights on the other hand pertains to the observance of human rights in terms of sanctions laid down by existing international legal instruments. See Vasak K "Distinguishing criteria of Institutions" 215 - 261

⁴⁰⁶ Viljoen F "Contemporary challenges to international human rights law and the role of human rights education" 2011 *De Jure* 213; and Viljoen F "Exploring the Theory and Practice of the Relationship between International Human Rights Law and Domestic Actors" 2009 *Leiden Journal of International Law* 179.

⁴⁰⁷ See UN Development Programme, Human Development Report 2000 19

⁴⁰⁸ Alston 2005 12 available at www.ohchr.org/english/issues/millennium-development/alston.doc. [date of use 11 September 2013].

duplicative, or competing alternatives.⁴⁰⁹ Despite the extensive overlap between the MDGs and the economic and social rights as contained in the ICESCR,⁴¹⁰ the MDGs contain limited reference to human rights and more specifically, social and economic rights. Despite the normative strength that economic and social rights derive from the various treaty provisions that address them, it cannot be denied that parts of that body of rights continue to be the subject of strong resistance. The MDGs on the other hand have been endorsed in an endless array of policy documents adopted not only at the international level but also in the policies and programmes of national governments. Yet they lack binding legal status.⁴¹¹ Relying on the descriptions put forward by Alston, it is most often *assumed* that the MDGs and human rights are not just significantly overlapping and mutually reinforcing, but fully compatible and complementary. They are seen as a natural fit, driven by the same objectives, using very similar means, facing common obstacles, and relying on closely related constituencies and political dynamics in order to make progress.⁴¹²

Taking the nature of the relationship between the MDGs and human rights to this extreme limit would in reality be a mistake both conceptually and empirically. On the MDG side, references to human rights are relatively fleeting, rarely rely on any precise formulations, and usually contain occasional reference to the Universal Declaration or the Declaration on the Right to Development. Furthermore, the existing national MDG reports contain few references to human rights terms or concepts, and if references are made they do not attribute a fixed normative content to human rights terminology. This results in rendering terms such as governance, equity, participation and dignity conveniently open-ended, contingent and subjective.⁴¹³ These references, however limited, do create an interesting link between the MDGs and the international human rights regime – one which will be elaborated upon in subsequent sections.

⁴⁰⁹ Alston 2005 *Human Rights Quarterly* 759.

⁴¹⁰ For an overview of the overlap and synergy between the MDGs and the rights contained in the ICESCR see Alston 2005 *Human Rights Quarterly* 785.

⁴¹¹ Alston 2005 *Human Rights Quarterly* 774.

⁴¹² Jahan S "Millennium Development Goals and Human Rights" 85.

⁴¹³ Alston "What's in a Name" 95.

The relation between the MDGs and human rights has drawn remarkably limited attention in the UN General Assembly's deliberations on human rights matters or those of the UN Commission on Human Rights. The result of the limited convergence between the agendas of those bodies dealing with the MDGs and those dealing with human rights is that while a potential commonality of interest has been acknowledged, not enough has been done in concrete terms to explore the exact nature of the relationship. From the perspective of the human rights community this amounts to a major missed opportunity, given that the realisation of the MDGs is arguably the single most important and pressing initiative on the international development agenda, and that there are a great many possible points of mutual reinforcement. From a development perspective it is equally problematic, given the extent to which the MDG agenda could be promoted in the context of activities undertaken at both the regional and international levels to encourage respect for human rights.⁴¹⁴

Regarding the nature of the relationship between the MDGs and human rights, it is concluded that the MDGs reflect at most a partial human rights agenda, while the human rights response to the MDG initiative is labelled as limited. The reasons put forward to explain the strained relationship between the two initiatives are varied but need to be understood in order to address the challenge of ensuring mutual compatibility especially with reference to the social, economic and cultural rights embodied in the international human rights regime. The following section contains an overview of the primary reasons for the limited human rights response to the MDG initiative.

4.5.1 Human rights critiques of the MDGs

Before looking in detail at some of the specific human rights criticisms levelled against the MDGs, an overview of a number of essential critiques on the very concept of the MDGs will be provided. As stated earlier, the approach of the MDGs

⁴¹⁴ Alston 2005 *Human Rights Quarterly* 761.

is essentially narrowly focused, quantitative and pragmatic in nature, and it is precisely this approach which sets it apart from other development initiatives. The first point of essentialist critique levelled against the MDGs relates specifically to the content of the Goals themselves and holds that, notwithstanding their narrow focus, the scope of the MDGs does not warrant international support.⁴¹⁵ Pogge's criticism focuses specifically on the MDG of halving world poverty rates by 2015, which according to him is not only formulated in a radically under-ambitious fashion but constitutes a dramatic lowering of UN development goals.⁴¹⁶ He goes as far as label the embracing of the Goal as a crime against humanity, as the Goal essentially provides for and allows half of today's poor to live in a state of poverty and hunger by 2015.⁴¹⁷ Another criticism is that goals such as the MDGs are not only wholly unrealistic but are actually counter-productive in the sense that they creates hopes and expectations which are not based on actual international experiences. This viewpoint is closely related to comparable arguments which criticise the MDG initiative's strong focus on the time-bound nature of the Goals. It is argued that the MDGs could end up "undermining the cause by overreaching on the targets and over-selling the efficacy of aid"; by "making the perfect the enemy of the good"; and by "creating a climate of inaccurate pessimism about development and aid".⁴¹⁸ The overriding argument is therefore that the MDGs should be treated not as genuine time-bound targets but should rather serve as "reminders of the stark contrast between the world we want and the world we have."⁴¹⁹

⁴¹⁵ Pogge 2003 www.etikk.no/globaljustice/ [date of use 11 September 2013].

⁴¹⁶ In this regard he specifically refers to the goals contained in the *Rome Declaration on World Food Security*, 1996 (Rome Declaration). The Rome Declaration clearly states that everyone has the right to access to safe and nutritious food and the fundamental right to be free from hunger. The Declaration furthermore provides that the political will of the international community be geared towards the promotion of global food security. See Rome Declaration 1996 www.fao.org/docrep/003/w3613e/w3613e00.htm. [date of use 11 September 2013].

⁴¹⁷ Pogge 2003 www.etikk.no/globaljustice/. [date of use 11 September 2013].

⁴¹⁸ The critique rests on several grounds, one of which is that many countries are bound to fail to meet the Goals because of their ambitious nature and that, as a result, "governments pursuing wise policies and making historically encouraging progress on development indicators could be weakened or delegitimised by the label of 'failure' by 2015." Another is that countries that do not receive the scale of aid called for can place the blame for their failure to achieve the Goals on the lack of aid rather than their own poorly formulated policies. Finally, failure to achieve the MDGs could "undermine constituencies throughout the developing world for necessarily slow but essential reforms toward effective governance mechanisms." For an overview of the critiques and their underlying concerns see Clemens et al 2007 *World Development* 741, 746, 748.

⁴¹⁹ Clemens MA, Kenny CJ and Moss TJ "The Trouble with the MDGs: Confronting Global Expectations of Aid and Development Success" 2007 *World Development* 735.

In addition to these criticisms, a range of human rights-specific critiques has been put forward and relates broadly to issues such the processes of adoption;⁴²⁰ content;⁴²¹ focus;⁴²² the relationship with other development initiatives;⁴²³ and monitoring and follow-up.⁴²⁴ While these critiques should certainly not lightly be dismissed, there are grounds for suggesting that many of them are able to be remedied and that the challenge should be situated in a broader context in order to ensure any strong commitment to the MDGs by the human rights community. The most important response to the human rights-based critiques of the MDGs is to emphasise that support of the one initiative does not detract from the work done or the progress made on the other. Bearing in mind that the objective of promoting global sustainable development is an objective shared by the MDG initiative and the international human rights regime, deciding upon exclusively subscribing to one would serve to “make best policy the enemy of the good”.⁴²⁵ The shared objective of promoting sustainable development therefore serves as a basis for arguing that a supportive relationship exists between the two initiatives. One method of ensuring a mutually inclusive and dually reinforcing relationship between the two agendas is to introduce an MDG rationale for pursuing a variety of economic and social rights.

⁴²⁰ The MDG process is a top-down rather than a grassroots effort. It is, in effect, an imposition by governments acting through the UN General Assembly. See Alston 2005 *Human Rights Quarterly* 765.

⁴²¹ The MDGs do not contain any particular focus on rights, thus effectively side-lining rights as though they were a marginal or token issue. From a human rights perspective the MDGs are problematic because of their selectivity, which also involves the inclusion of certain rights. The MDGs’ preparedness to settle for half measures (for instance, halving poverty instead of eliminating it) is incompatible with the human rights commitment to the rights of every individual and the need to seek comprehensive solutions. The Goals represent a one-size-fits-all prescription and are not tailored to country-specific needs. Finally, the MDG definition of poverty is too narrow and its emphasis on specified goals takes poverty out of its broader context. See Alston 2005 *Human Rights Quarterly* 765.

⁴²² The MDGs are state-focused at a time when privatisation and other policies are making the state as actor in the international law realm less capable of responding. See Alston 2005 *Human Rights Quarterly* 765 - 766.

⁴²³ Some argue that the MDGs are superfluous as the adoption of the alternative framework of a rights based approach to development would encompass all of the relevant issues. The MDGs might serve to distract attention from real human rights issues and in this sense compete with other development frameworks through which NGOs and civil society are working effectively. In the final instance, the MDG framework does not address private actors, which often have a major role to play in the achievement of the Goals. See Alston 2005 *Human Rights Quarterly* 766.

⁴²⁴ The MDG initiative does not provide for any in-depth analytical review of progress achieved or shortcomings identified. In this regard see Alston 2005 *Human Rights Quarterly* 765; and the Center for Human Rights and Global Justice Report 2003 31.

⁴²⁵ Goepel 2010 *Sustainability* 1699.

This brings an important instrumentalist dimension into the arguments for achieving the Goals, which complements principled or normative arguments for these rights.⁴²⁶ It is possible and even desirable to insist on a contextualised MDG approach, one which is located within a human rights framework, one that is flexible and able to be adapted to local needs and changing circumstances, and one that will involve the mobilisation of additional resources.

4.5.2 *Synergies between the MDGs and international human rights*

It is postulated that the nature of the relationship (albeit a potential relationship) between the MDGs and human rights provides the theoretical basis for proposing that a desire to promote human rights should direct AU development efforts. Values, principles and standards of human rights must guide and permeate the entire development programming process, thereby forging and re-establishing the inter-relatedness of the realisation of human rights and the promotion of sustainable development. The success of human rights-based development strategies will rest on the recognition of the primacy of universal human rights *vis-à-vis* the development process as a whole.⁴²⁷ As such, respect for human rights is to be reflected in a region's norms, institutions, legal frameworks and enabling economic, political and policy environment.

Furthermore, existing human rights must be interpreted in such a manner as to include other rights which are indispensable to their realisation. In this regard, a revised version of the test put forward by Tomuschat might prove helpful. In terms of this revised test, no right should be excluded as human rights norm dependent on the following two requirements: (i) the right is indispensable to a meaningful notion of human dignity; and (ii) the satisfaction of the right is demonstrably within the reach of the government in question.⁴²⁸ Considering the first component of this revised test, it

⁴²⁶ Alston 2005 *Human Rights Quarterly* 766.

⁴²⁷ UNDP 2003 9.

⁴²⁸ Tomuschat *Human Rights: Between Idealism and Realism* 35, and Alston 2005 *Human Rights Quarterly* 774.

should theoretically be possible to derive a right from existing international economic and social rights as long as the existing social and economic right is intrinsically linked with human dignity. The derivative right finds its status and application within the normative status of the social and economic right it was derived from. Stated differently, any existing social or economic right – whether provided for in legal instruments at the international or regional level – can form the basis for the formulation of derivative rights which are indispensable to a meaningful notion of human dignity. In the following sections the author will use the right to development and the right to an adequate or general satisfactory environment, two existing international and regional human rights, as the basis for the above statement.

4.6 *The right to development as an international and regional human right*

The right to development resulted in an attempt to remedy the split between civil and political rights on the one hand and economic, social and cultural rights on the other brought about by the drafting of the ICCPR and the ICESCR. The right to development was first articulated by the developing countries in the context of the New International Economic Order and was later taken up by experts, academics, and NGOs.⁴²⁹ This led to the formulation of the *Draft Declaration on the Right to Development*, which was formally adopted by the General Assembly in December 1986. The right to development unifies civil and political rights with economic, social and cultural rights into an indivisible and interdependent set of human rights and fundamental freedoms, to be enjoyed by all human beings.⁴³⁰ In 1993, the right to development was reaffirmed by the Vienna Declaration, which stated that "the right to development, as established in the Universal Declaration, is a universal and inalienable right and an integral part of fundamental human rights".⁴³¹

⁴²⁹ Sengupta 2002 *Human Rights Quarterly* 839.

⁴³⁰ Preamble to the Declaration on the Right to Development.

⁴³¹ Vienna Declaration and Programme of Action, U.N. GAOR, World Conference on Human Rights, 48th Sess., 22d plenary meeting, pt. 1, U.N. Doc. A/CONF.157/23 (1993).

The right to development as a human right encompasses all civil, political, social, economic and cultural rights and furthermore holds that progress in the realisation of one human right constitutes progress in the realisation of another. Its inclusion in the Banjul Charter is meant to facilitate African sustainable development by means of the progressive realisation of human rights. Article 22 includes the right to development whereas article 24 contains an environmental right coupled with a right to development. Development in the context of the Banjul Charter must be seen to include social, cultural and economic development coupled with the enjoyment of the common heritage of mankind.⁴³² The provision furthermore tasks member states with the duty to ensure the exercise of the right to development either individually or collectively.⁴³³ Article 24 in turn contains the right to a generally satisfactory environment favourable to development. Energy poverty as a challenge to the realisation of the right contained in article 24 of the Banjul Charter and the subsequent realisation of the right to development will be discussed in the following section. Viewing energy poverty as a challenge to the realisation of the right to development will provide the context from which a right to energy an independent AU human right will be distilled.

⁴³² Article 22(1) of the Banjul Charter.

⁴³³ Article 22(2) of the Banjul Charter.

4.7 *Energy poverty as a challenge to human rights*

Based upon the principle of the indivisibility of the different rights comprising the international human rights regime, a (non-binding) statement made during the 1993 Vienna World Conference on Human Rights drew attention to the following:

...that States and the international community as a whole continue to tolerate all too often breaches of economic, social and cultural rights, which if they occurred in relation to civil and political rights, would provoke expressions of horror and outrage and would lead to concerted calls for immediate remedial action. In effect, despite the rhetoric, violations of civil and political rights continue to be treated as though they were more serious, and more patently intolerable, than massive and direct denials of economic, social and cultural rights... Statistical indicators of the extent of deprivation, or breaches, of economic, social and cultural rights have been cited so often that they have tended to lose their impact. The magnitude, severity and constancy of that deprivation have provoked attitudes of resignation, feelings of helplessness and compassion fatigue. Such muted responses are facilitated by a reluctance to characterise the problems that exist as gross and massive denials of economic, social and cultural rights.⁴³⁴

According to the 2003 UNDP report, violations of economic and social rights should be seen as being synonymous with extreme poverty, and as the most serious form of infringement of international human rights.⁴³⁵ In legal terms this viewpoint can be acceptable only to the extent that a government has failed to take measures which would have been feasible and which could have had the effect of avoiding or mitigating the plight of the poor.⁴³⁶ This proviso relates directly to the principle of progressive realisation as embodied in the text of the ICESCR.⁴³⁷ In terms of this principle, it is acknowledged that, while in practice some rights are much harder to achieve than others, their realisation still necessitates action in the form of legislative

⁴³⁴ Quote by the UN Committee on Economic, Social and Cultural Rights at the Vienna World Conference on Human Rights held in Vienna, Austria, 14 – 25 June 1993. See UN Doc. E/1993/22, Annex III, paragraphs 5 and 7.

⁴³⁵ UNDP 2003 iv.

⁴³⁶ In a country or region with adequate resources this proposition will almost always be valid. In a country or region with very limited resources it will also be valid in the sense that the government has failed to take steps which were open for it to improve the situation and instead has opted to devote scarce resources to other objectives which do not directly address the realisation of basic economic and social rights. See Alston 2005 www.ohchr.org/english/issues/millennium-development/alston.doc 64 [date of use 18 September 2013].

⁴³⁷ Article 2 of the ICESCR.

measures. The principle imposes both a continuing obligation on states to work towards the realisation of each right as well as minimum core obligations imposed by the attempt at realisation.⁴³⁸ Consistent with this legal analysis are the legally non-binding provisions contained in the *Vienna Declaration and Programme of Action*, 1993 which hold that the "existence of widespread poverty inhibits the full and effective enjoyment of human rights," and that "extreme poverty and social exclusion constitute a violation of human dignity."⁴³⁹ These provisions, read in conjunction with the arguments of Pogge⁴⁴⁰ and Tomuschat,⁴⁴¹ represent the principal justification for the argument that poverty is incompatible with human dignity, which is the foundation of human rights. Therefore it is argued that where the non-realisation of certain economic and social rights contributes towards exacerbating extreme poverty, one should be able to deduce that those economic and social rights are indispensable to human dignity.⁴⁴²

This argument, however progressive it may be, is not the message contained in either the carefully negotiated language of the Vienna Declaration or the provisions of the Millennium Declaration. Neither one of these instruments classifies poverty as a human rights violation *per se*, but rather refers to poverty as a human rights challenge which necessitates international efforts directed to its eradication.⁴⁴³ In much the same fashion the *Maastricht Principles on Extraterritorial Obligations of States in the area of Economic, Social and Cultural Rights* drafted in 2011 (Maastricht Principles) only very tentatively links poverty with the non-realisation of social, economic and cultural rights, but stops short of labelling poverty as an outright human rights infringement.⁴⁴⁴

⁴³⁸ The nature of States parties obligations (Art. 2, par.1). See in this regard CESCR General comment 3 available at <http://www.unhcr.ch/tbs/doc.nsf/0/94bdbaf59b43a424c12563ed0052b664> [date of use 15 April 2013].

⁴³⁹ See the Vienna Declaration and Programme of Action at paragraph 5 in *Report of the World Conference on Human Rights: Report of the Secretary-General*, U.N. doc. A/CONF.157/24 paragraphs 14 and 25 respectively.

⁴⁴⁰ See paragraph 4.5.1 at notes 410 and 411 above.

⁴⁴¹ See paragraphs 4.4 and 4.5 at notes 383, 387 and 423 above.

⁴⁴² This argument is closely related to the revised Tomuschat test.

⁴⁴³ Alston 2005 www.ohchr.org/english/issues/millennium-development/alston.doc 66 [date of use 18 September 2013].

⁴⁴⁴ Preamble of the Maastricht Principles.

The definition of poverty is steadily moving towards a human rights-based vision highlighting its underlying multitude of causes. The increased awareness that respect for human rights is an essential requirement for socio-economic development outcomes challenges the notion that income is a sufficient proxy indicator for measuring poverty.⁴⁴⁵ A result of a more holistic analysis is the definition of poverty contained in the Millennium Project Task Force 1 on Poverty and Economic Development report, which embraces three forms of "human poverty":

(1) income poverty, as typically defined by lack of private household income (so-called dollar-a-day poverty); (2) social service poverty, including the lack of public provision of education, health, water and other services; (3) environmental poverty, including the lack of, or degradation of, core environmental resources needed for human well-being⁴⁴⁶

Considering this broad definition of poverty as well as the two issues included in the concept of energy poverty,⁴⁴⁷ it is clear to see that the concept of energy poverty may fall within social service poverty as well as environmental poverty. The social service component of energy poverty relates to the low levels of access to modern energy sources which is prevalent throughout Africa, while the environmental component again refers to the detrimental environmental impacts associated with a heavy reliance on biomass as the primary energy source.

Applying to energy poverty the same arguments as those which serve as the conceptual basis for the proposition that poverty constitutes a challenge to the full realisation of all international human rights, one would be able to argue the following: that the detrimental developmental impacts related to energy poverty in Africa constitute a challenge to the full realisation of human rights. Furthermore, access to energy should be seen as an economic and/or social right which is indispensable to

⁴⁴⁵ UNDP 2003 2.

⁴⁴⁶ Pangestu and Sachs Interim Report of the Millennium Project Task Force on Poverty and Economic Development 2004 4.

⁴⁴⁷ Energy poverty generally refers to a situation which is characterised by a lack of access to modern energy sources and an intense reliance on traditional biomass as primary energy source. See paragraph 2.2 above.

the notion of human dignity. In addition, if the first component of the revised Tomuschat test, which holds that no right indispensable to a meaningful notion of human dignity should be excluded, is applied to energy poverty, a right to energy does not seem farfetched. It is accordingly submitted that the right to energy (as proposed by the author) should be seen to fall within the ambit of what is considered a right which is indispensable to the notion of human dignity – in other words, a human right. The proposed right to energy should however find its basis within the normative framework of international and regional human rights instruments – specifically the right to development and the right to an adequate environment as existing human rights in the AU.

4.8 Realising the right to a general satisfactory environment favourable to development at the AU level

Access to modern energy is neither expressly mentioned as one of the MDGs nor as an economic or social right. This notwithstanding, its importance in facilitating the achievement of the MDGs, the subsequent promotion of sustainable development, and the promotion of the international human rights agenda has been established.⁴⁴⁸ The challenge to the full realisation of human rights posed by the prevalence of energy poverty in Africa begs for a normative response from AU law and policy-makers. This normative response should, in the opinion of the author, find its legal basis in existing human rights specifically those contained in articles 22 and 24 of the Banjul Charter, and should result in the formulation of a right to energy as an independent AU human right. The proposal that a right to energy be distilled from existing AU human rights will find its conceptual basis in the arguments found in General Comment 15 of the UN Committee on Economic, Social and Cultural Rights (the CESCR), 2002⁴⁴⁹ pertaining to the formulation of a right to water as an independent international human right.

⁴⁴⁸ See paragraph 3.4 above.
⁴⁴⁹ E/C. 12/2002/11.

4.8.1 Interpreting General Comment 15 of the CESCR

Not until the CESCR issued General Comment 15⁴⁵⁰ on the human right to water in 2002⁴⁵¹ was the right to drinking and sanitation water authoritatively defined as a human right.⁴⁵² References to the right to water in international human rights instruments are fleeting⁴⁵³ and the right is also not expressly referred to in the texts of the ICESCR⁴⁵⁴ or the Universal Declaration.⁴⁵⁵ Due to the lack of reference to an express right to water in the text of the ICESCR, the CESCR has had to read in⁴⁵⁶ the right from implicit or existing provisions. The CESCR in this regard referred to articles 11 and 12 of the ICESCR, which respectively provide for the right to an adequate standard of living and the right to the enjoyment of the highest attainable standard of physical and mental health. According to the CESCR, these existing provisions implicitly contain an autonomous human right to water.⁴⁵⁷

The lack of an explicit protection of the human right to water in the ICESCR meant that the CESCR was forced to find innovative ways to ground the right in the elastic

⁴⁵⁰ General Comments are authoritative interpretations by expert human rights monitoring bodies of the content of human rights treaty provisions that they are established to monitor. While highly persuasive, they are not legally binding.

⁴⁵¹ *General Comment No 15 (2002): The Right to Water (Arts 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)*, 29th session, Agenda Item 3, U.N. Doc E/C.12/2002/11 (20 January 2003) (General Comment No 15). According to paragraph 2 of *General Comment No 15*, the human right to water “entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses”.

⁴⁵² Narain V “Water as a Fundamental Right: A Perspective from India” 2010 *Vermont Law Review* 917 - 919; and McCaffrey “The Human Right to Water” 93, 101.

⁴⁵³ The *Convention on the Elimination of All Forms of Discrimination Against Women*, 1979 (CEDAW) and the *Convention on the Rights of the Child*, 1989 respectively contain reference to the right to water. The CEDAW provides in article 14(2)(h) that state parties are bound to ensure that women have the right to “enjoy adequate living conditions”, particularly in relation to water supply, while the CRC provides in article 24(2)(c) that states must combat disease and malnutrition “through the provision of adequate nutritious food and clean drinking water”.

⁴⁵⁴ The ICESCR is the international human rights instrument which pertains specifically to the protection and promotion of economic, social and cultural rights. In terms of the provisions of the ICESCR, each person should enjoy these rights on the basis of his/her inherent human dignity.

⁴⁵⁵ Universal Declaration, GA Res 217(III) A, UN GAOR, 3rd Comm, 3rd sess, 183rd plen mtg, Agenda Item 58, U.N. Doc A/RES/217(III) A (10 December 1948).

⁴⁵⁶ Spigelman *Statutory Interpretation* 133 – 134.

⁴⁵⁷ Bulto TS “The Emergence of the Human Right to Water in International Human Rights Law: Invention or Discovery” 2011 *Melbourne Journal of International Law* 12 10; Bulto TS “The Human Right to Water in the Corpus and Jurisprudence of the African Human Rights System” 2011 *African Human Rights Law Journal* V 11 341; and Langford M “The UN Concept of Water as a Human Right: A New Paradigm for Old Problems?” 2005 *Water Resources Development* 275.

and inclusionary terms of the ICESCR through the use of teleological (purposive) interpretation.⁴⁵⁸ This interpretative approach dictates that ambiguities and *lacunae* in treaty provisions should be interpreted in such a way that best serves the object and purpose of the treaty. Teleological interpretation is used, *inter alia*, to promote the objectives for which the rule of law was designed and to fill legal gaps in a given legal order.⁴⁵⁹ The CESCR's approach in its General Comment No 15 serves these two purposes. By defining the right holders' entitlements and the duty bearers' obligations in the realisation of the human right to water, it expanded and promoted the human rights guaranteed under the ICESCR. More importantly, by explicating the latent content of the ICESCR in relation to the human right to water, it attempted to fill the gap in the protective regime relating to the human right to water that had been missing from the explicit terms of the ICESCR.⁴⁶⁰ The CESCR thus derived a free-standing right to water *inter alia* from the provisions of article 11 of the ICESCR. In the process of deriving this right to water, the CESCR put special emphasis on the usage of the word "including" in the wording of article 11(1). Despite the lack of explicit reference to the right to water, the CESCR viewed the manner in which the word "including" is put in front of the list (food, clothing and housing) as indicative of the fact that the catalogue of rights in article 11(1) is not exhaustive. Since article 11 seeks to guarantee the right to an adequate standard of living to right-holders, the prerequisites of which comprise food, housing and clothing, the inclusion of the right to water in the list is in consonance with the object and purpose of art 11(1).⁴⁶¹

However, for all its innovative approaches to carving the human right to water out of other more explicit rights of the ICESCR, the CESCR and its General Comment No 15 have been criticised as "revisionist"⁴⁶² and the CESCR's approach to the

⁴⁵⁸ This approach to interpretation dictates that primary importance should be given to the object and purpose of a legal provision, rather than giving the instrument a narrow and restricted meaning. The overall effect is that a court or quasi-judicial body is to prefer a construction that would promote the purpose of legislation in all stages of the process of interpretation. See Bulto 2011 *Melbourne Journal of International Law* 10.

⁴⁵⁹ Delmas-Marty *The European Convention for the Protection of Human Rights* 292; and Schermers and Waelbroeck *Judicial Protection* 21 - 22.

⁴⁶⁰ Bulto 2011 *Melbourne Journal of International Law* 10.

⁴⁶¹ Bulto 2011 *Melbourne Journal of International Law* 10.

⁴⁶² Dennis MJ and Stewart DP "Justiciability of Economic, Social and Cultural Rights: Should There Be an International Complaints Mechanism to Adjudicate the Rights to Food, Water, Housing and Health?" 2004 *American Journal of International Law* 462.

interpretation of articles 11 and 12 of the ICESCR has been criticised as “unreflective”.⁴⁶³ Tully especially criticises the manner in which the CESCR relies on the word “including” in order to provide room to add the right to water to the list of rights contained in article 11 of the ICESCR. He enumerates a seemingly endless list of possible candidates for inclusion in the list in art 11, and argues that if one were to follow the approach of the CESCR, the list would include such things as access to the internet and postal delivery services.⁴⁶⁴ A further point of criticism is that the CESCR simply invented a novel right to water,⁴⁶⁵ which - to these commentators - is at odds with or ahead of state practice or what states parties envisaged upon their ratification of or accession to the ICESCR.⁴⁶⁶

These points of criticism can however be easily dispelled. In the first place, his criticism of the reliance on the word “including” as the basis for including the right to water does not hold water as the use of “including” is not novel in law-making. It allows for the incorporation of emerging fundamental rights that eluded the explicit list of the law-making body at a particular time. In instances where a treaty is fluid along its margins, the clarification of the normative content is the proper task of treaty interpreting bodies such as the CESCR. Such ambiguities allow room for the updating and elaboration of treaty norms in keeping with emergent international problems without the need to resort to rigorous treaty amendment procedures.⁴⁶⁷ Furthermore, Tully’s concern that “including” other rights might lead to the inclusion of any and all rights is also misplaced. The wording used by the CESCR in General Comment 15 is crafted carefully so as to incorporate only such rights that are fundamental and that can clearly fit within the list of rights.⁴⁶⁸ This CESCR’s approach obviates the possibility of including an endless list of relatively less essential categories under the guise of the imprecision built into art 11(1) through the

⁴⁶³ Tully S “Flighty Purposes and Deeds: A Rejoinder to Malcolm Langford” 2006 *Netherlands Quarterly of Human Rights* 461.

⁴⁶⁴ Tully S “A Human Right to Access Water? A Critique of *General Comment No 15*” 2005 *Netherlands Quarterly of Human Rights* 23 37 - 38.

⁴⁶⁵ Tully 2005 *Netherlands Quarterly of Human Rights* 23 35.

⁴⁶⁶ While thus far State Parties to the Covenant have not objected to the interpretation contained in the General Comment No 15, State Practice occurs more through accretion than avulsion. Thus it may take some time for countries to react, one way or the other. See McCaffrey “The Human Right to Water” 94.

⁴⁶⁷ Bulto 2011 *Melbourne Journal of International Law* 11.

⁴⁶⁸ Paragraph 3 of General Comment 15.

use of the word “including”.⁴⁶⁹ The approach followed by the CESCR in deriving the right to water from existing rights contained in the ICESCR is of central relevance to this thesis. The methodology applied by the CESCR in interpreting articles 11 and 12 of the ICESCR in order to derive the right to water from explicit international human rights provides the conceptual basis for deriving a right to energy at the AU level. The author will apply the CESCR’s methodology in order to indicate that just as a right to water is indispensable for the realisation of the right to an adequate standard of living, so too is a right to energy indispensable for the realisation of existing AU human rights.

4.9 Deriving an AU right to energy from existing AU human rights

At the AU regional level, the Banjul Charter reaffirms the central importance of the realisation of the right to development, and furthermore acknowledges the indivisibility and universality of economic, social, cultural, political and civil rights.⁴⁷⁰ The Banjul Charter adheres to the principles of the international human rights instruments comprising the UN human rights regime, which is founded on human dignity and aims to protect and promote the human rights of all African people.⁴⁷¹ The observance of the human rights contained in the Banjul Charter therefore correlates directly with the promotion and protection of the human dignity of Africans. The Banjul Charter expressly notes that the diverse human rights are causally linked and should therefore be seen to be mutually reinforcing. The different human rights create synergies that contribute to the poor securing their rights, enhancing their human capabilities and escaping poverty. Social and economic rights should therefore not be separated from civil and political rights as the realisation of one set of rights is dependent upon the realisation of the other.⁴⁷²

⁴⁶⁹ Grönwall *Access to Water* 215.

⁴⁷⁰ Preamble to the Banjul Charter. With regard to the universality of the human rights contained in its text, the Banjul Charter states that: “the satisfaction of economic, social and cultural rights is a guarantee for the enjoyment of civil and political rights”.

⁴⁷¹ Preamble to the Banjul Charter.

⁴⁷² Viljoen F “Application of the African Charter on Human and Peoples’ Rights by domestic courts in Africa” 1999 *Journal of African Law* 12; Alston 2005 www.ohchr.org/english/issues/millennium-development/alston.doc. [date of use 13 March 2013].

The right to economic, social and cultural development is expressly included as a human right in the text of the Banjul Charter and the duty to exercise the right to development is placed on AU member states individually and collectively.⁴⁷³ Included in the list of inalienable human rights contained in the Banjul Charter is the right to a generally satisfactory environment favourable to their development.⁴⁷⁴ Article 24 read with article 22 of the Banjul Charter therefore holds that the realisation of the right to development is dependent upon the promotion of the right to a generally satisfactory environment, among others. The CESCRC approach of deriving latent human rights from other related and more explicit guaranteed human rights has been accepted by other tribunals. The ACHPR, for example, has used the same approach applied by the CESCRC of locating an implicit human right to water in explicit provisions of the Banjul Charter.⁴⁷⁵ The ACHPR has already rendered several decisions on alleged violations of human and peoples' rights. In *Free Legal Assistance Group and Others v Zaire*,⁴⁷⁶ the ACHPR held that the failure of the government to provide basic services such as safe drinking water and electricity and the shortage of medicine constitutes a violation of article 16 (of the Banjul Charter).⁴⁷⁷

In *SERAC & Another v Nigeria*⁴⁷⁸ the ACHPR dealt with alleged violations by Nigeria of development-related rights in the restive region of the Niger Delta. The complainants alleged violations of the right to life, the right to health, the right to a healthy environment, the right to property, the right to housing and food, and the protection of the family.⁴⁷⁹ Drawing on international law, the ACHPR restated the four obligations of states regarding human rights: to respect, protect, promote and fulfil them, and furthermore insisted that these obligations applied to all guaranteed rights contained in the Charter. The ACHPR found that the right to health and the

⁴⁷³ Article 22 of the Banjul Charter.

⁴⁷⁴ Article 24 of the Banjul Charter.

⁴⁷⁵ See generally Bulto 2011 *African Human Rights Law Journal* 344.

⁴⁷⁶ ACHPR, *Communications* 25/89, 47/90, 56/91, 100/93: *World Organisation against Torture, Lawyers' Committee for Human Rights, Jehovah Witnesses, Inter-African Union for Human Rights v Zaire*, 19th sess (March 1996) [4], [47].

⁴⁷⁷ Article 16 of the Banjul Charter which enshrines the right to to enjoy the best attainable state of physical and mental health.

⁴⁷⁸ See ACHPR, *Communication No 155/96: The Social and Economic Rights Action Centre and the Centre for Economic and Social Rights v Nigeria*, 30th sess (13–27 October 2001) 8–9.

⁴⁷⁹ These rights are contained in articles 16, 24, 14 and 18 of the Banjul Charter respectively.

right to a generally satisfactory environment had been violated.⁴⁸⁰ What should be seen to be included in the right to a healthy environment⁴⁸¹ is relevant to the discussion at hand and although the SERAC decision did not determine the precise content thereof, it did reaffirm its existence and established some jurisprudence on the topic.⁴⁸² The right to a healthy environment is categorised as a third generation right, the nature of which is generally uncontested in the sense that it is a right to which the broader public is a beneficiary of.⁴⁸³ The application of a human rights approach to environmental protection is described by van der Linde and Louw as relying on a two-fold process. The first would be procedural rights⁴⁸⁴ which play an integral role in ascertaining whether the right to a healthy environment has been violated and in ascertaining the right in a given situation.⁴⁸⁵ The substantive rights on the other hand denote the central part and meaning of the right to a healthy environment for which, as yet, no clear definition or demarcation of its content yet exists. What is however clear, is that a contextual approach to establishing the content of the right to a healthy environment needs to be followed – one in which both procedural and substantive rights are relied upon.⁴⁸⁶

⁴⁸⁰ 155/96 *Social and Economic Rights Action Centre (SERAC) and the Centre for Economic and Social Rights v Nigeria*, 15th Annual Activity Report [in Decisions 2002–2007, IHRDA, Banjul 2008, 277–293], paragraph 52.

⁴⁸¹ The right to a general satisfactory environment favourable to development as contained in article 24 of the Banjul Charter will, for the sake of brevity, be hereinafter referred to as the right to a healthy environment.

⁴⁸² Van der Linde M and Louw L "Considering the interpretation and implementation of article 24 of the African Charter on Human and Peoples' Rights in the light of the SERAC communication" 2003 *African Human Rights Law Journal* 174.

⁴⁸³ These rights possess characteristics of civil and political rights as well as socio-economic rights as government must refrain from action or inaction that would impair the enjoyment of the right to a healthy environment and refrain from practices that might be harmful to the environment. Government is further under the obligation to progressively realise and fulfil the right to a healthy environment. See Glazewski *Environmental Law in South Africa* 17; and Kidd *Environmental Law* 34.

⁴⁸⁴ These include rights such as the right to information, the right to be informed of environmental risks, the right to legal address when this right has been violated, the facilitation of public environmental litigation, the right to effective redress in the event of environmental damage and the right to participate in environmental decision-making. Van der Linde and Louw 2003 *African Human Rights Law Journal* 175.

⁴⁸⁵ Viljoen F and Louw, L "State Compliance with the Recommendations of the African Commission on Human and Peoples' Rights, 1994–2004" 2007 *American Journal of International Law* 1-34; Viljoen *International Human Rights in Africa* 5; and Van der Linde and Louw 2003 *African Human Rights Law Journal* 175.

⁴⁸⁶ Van der Linde and Louw 2003 *African Human Rights Law Journal* 176.

In applying this contextual approach, the ACHPR established that the right to a satisfactory environment as a right that requires a government to:

take reasonable measures to prevent pollution and ecological degradation; promote conservation and ensure ecological sustainable development and the use of natural resources; permit independent scientific monitoring of threatened environments; undertake environmental and social impact assessments prior to industrial development; provide access to information communities involved; and grant those affected an opportunity to be heard and participate in the development process.⁴⁸⁷

The Banjul Charter furthermore links the right to a satisfactory environment to development – thereby implying a relationship between the right to a healthy environment on the one hand and the right to development on the other. Maluwa views the relationship between these rights (environment and development respectively) to be both contributory and remedial as environmental degradation is often caused by development while measures employed to remedy environmental degradation are often related to development processes.⁴⁸⁸ The decision in the SERAC case however did little to shed light on the actual content of the right to development. Furthermore, while the ACHPR was of the opinion that the right to development was indeed violated, this was not reflected in its final decision in the SERAC case. The violation of the right to development was not pronounced in the ACHPR's final decision, rather the violation of the right to food (as implicit right to several violated provisions, including the right to development) was emphasised.⁴⁸⁹ The SERAC decision is remarkable, not only given the array of rights dealt with, but also with regard to the approach taken, that is, creative interpretation to infer rights not expressly guaranteed in the Banjul Charter.⁴⁹⁰

⁴⁸⁷ SERAC case, paragraphs 52 and 53.

⁴⁸⁸ Anderson "Human rights approaches" 15.

⁴⁸⁹ Kamga SAD *Human rights in Africa: Prospects for the realisation of the right to development under the New Partnership for Africa's Development* (LLD dissertation at the Centre for Human Rights, Faculty of Law, University of Pretoria 2011); and Kamga SAD "The right to development in the African human rights system: The Endorois case" 2011 *De Jure* 389.

⁴⁹⁰ Some of these rights not expressly provided for in the Charter but which the Commission 'read' into the instrument involve rights to food, hunting, etc. With this progressive interpretation, SERAC expanded the scope and range of the rights which States are bound to uphold under the Charter. The ACHPR decided that contamination of sources of drinking water by state or non-state actors was a violation of article 16 and article 24 of the Banjul Charter. See Hansungule "African courts and the ACHPR" 233.

Following on the decision in the SERAC case, the Endorois case⁴⁹¹ saw the ACHPR having to deal with the violation of freedom of conscience and religion, the rights to property, to culture, to natural resources and the right to development of indigenous peoples.⁴⁹² However, through the Endorois decision, the ACHPR departed from 'the doctrine of implied rights' which assisted its finding in the SERAC case. Instead, it went for the broad interpretation of the law which enabled it to consider the interdependency of the rights in protecting the right to development.⁴⁹³ Acting on behalf of the Endorois Welfare Council (EWC), the Centre for Minority Rights Development (CEMIRIDE) and Minority Rights Group International (MRG) argued that the Endorois' displacement between 1973 and 1986 violated collective rights to religious practice and culture, property, free disposition of natural resources, and development.⁴⁹⁴ The Kenyan government argued that the Endorois are not a distinct community but comprises four distinct clans; that they had received financial compensation at the time of displacement; that they continued to benefit from the development which led to their eviction; and that most of Kenya's ethnic groups do not reside solely on 'ancestral lands.' The ACHPR rejected these arguments and concluded that, by evicting and restricting their access to Lake Bogoria, the Kenyan government had violated the Endorois' right to development, among others.⁴⁹⁵

Of specific relevance to this thesis is the manner in which the ACHPR dealt with the question as to the justiciability of the right to development contained in article 22 of the Banjul Charter. The ACHPR views the right to development as a two-pronged test, that it is both constitutive and instrumental.⁴⁹⁶ Stated differently, the right to development is useful as either a means or an end in itself. It views a violation of either the procedural or substantive element as a violation of the right to development – in other words, the satisfaction of the right to development is

⁴⁹¹ Communication 276/2003, *Centre for Minority Rights Development (Kenya) and Minority Rights Group International on behalf of Endorois Welfare Council v Kenya*. See African Commission, 27th Activity Report, 2009.

⁴⁹² Articles 8, 14, 17, 21 and 22 of the Banjul Charter.

⁴⁹³ Okafor "Righting' the right to development"55.

⁴⁹⁴ ACHPR, 'Case 276/2003: *Centre for Minority Rights Development (Kenya) and Minority Rights Group International on behalf of Endorois Welfare Council versus Kenya*', February 2010, 1.

⁴⁹⁵ Lynch G "Becoming Indigenous in the Pursuit of Justice: The African Commission on Human and Peoples' Rights and the Endorois" 2011 *African Affairs* 10.

⁴⁹⁶ Endorois case, paragraph 277.

dependent upon the fulfilment of both prongs.⁴⁹⁷ The ACHPR notes the Complainants' arguments that recognising the right to development requires fulfilling five main criteria: it must be equitable, non-discriminatory, participatory, accountable, and transparent, with equity and choice as important, over-arching themes in the right to development.⁴⁹⁸

The decisions of the ACHPR and the interpretation of existing international human rights by the CDESCR provides a sound conceptual basis for arguing in favour of deriving a right to energy from existing AU human rights. The right to energy so distilled is referred to as a derivative right, the status of which depends upon the socio-economic rights it is derived from.⁴⁹⁹ The rights to development and to a generally satisfactory environment favourable to people's development as contained in articles 22 and 24 of the Banjul Charter are the existing rights from which the right to energy will be derived. The Banjul Charter makes no reference to rights pursuant to the realisation of the rights contained in articles 22 and 24 - as is the case in article 11 of the ICESCR. It is therefore not possible to rely on the use of the word "including" in order to read in the right to energy as a right indispensable to the realisation of either article 22 or 24. The conceptual basis for proposing an AU right to energy, in the opinion of the author, can be derived from the interpretation of existing economic, social and cultural rights as applied by the CDESCR in General Comment 15 and the SERAC and Endorois decisions. The conclusion is that in order to achieve the objective of the promotion of sustainable development and in essence realise article 22 and 24 rights, the formulation of a right to energy as a self-standing AU human right might prove beneficial. Accordingly, the author puts forward the following postulate: The full realisation of the right to a generally satisfactory environment favourable to development in Africa is dependent upon the formulation and fulfilment of the derivative right to energy (among others). The fulfilment of both these rights will culminate in the protection and promotion of human dignity and furthermore serve to promote sustainable development of the African continent.

⁴⁹⁷ Kamga 2011 *De Jure* 390.

⁴⁹⁸ Endorois case, paragraph 128.

⁴⁹⁹ Chociej *The Human Right to Water* 50; and Bluemel E B "The Implications of Formulating a Human Right to Water" 2004 *Ecology Law Quarterly* 31 957, 968 and 971.

4.10 Sustainable energy

Energy is the golden thread that connects economic growth, increased social equity and an environment that allows the world to thrive. Access to energy is a necessary precondition to achieving many development goals that extend far beyond the energy sector – eradicating poverty; increasing food production; providing clean water; improving public health; enhancing education; creating economic opportunity; and empowering women. In short, development is not possible without energy, and sustainable development is not possible without sustainable energy.⁵⁰⁰

Recognising the urgency of the challenges related to energy poverty and the lack of access to modern energy specifically, the UN declared 2012 as the International Year of Sustainable Energy for All in terms of a resolution adopted by the General Assembly in 2011.⁵⁰¹ The resolution acknowledges the global scale of the action needed to address energy issues such as modern energy services for all; access to affordable energy; energy efficiency; and the sustainability of energy sources and use.⁵⁰² These activities should be undertaken with the objectives of the achievement of the MDGs, promoting sustainable development and protecting the global climate. Intended as mechanism for the implementation of the provisions contained in resolution 61/151, the Secretary-General's High-Level Group on Sustainable Energy for All drafted and submitted its Global Action Agenda (GAA) early in 2012. The GAA identifies the three objectives of the UNSEI, namely: ensuring universal access to modern energy services; doubling the global rate of improvement in energy efficiency; and doubling the share of renewable energy in the global energy mix.⁵⁰³ In order to facilitate international commitments toward reaching the set objectives, the GAA sets out eleven action areas to focus international efforts. The action areas are grouped into two categories, namely sectoral⁵⁰⁴ and enabling⁵⁰⁵ action areas,

⁵⁰⁰ Chapter 1, paragraph 1.1 of the GAA 2012.

⁵⁰¹ A/RES/65/151. Also see Sustainable Energy for All; a Vision Statement by Ban Ki-moon Secretary-General of the UN November 2011 9.

⁵⁰² Paragraph 4 of A/RES/65/151.

⁵⁰³ Preface to the Global Action Agenda, 2012.

⁵⁰⁴ The sectoral Action Areas address issues related to power generation and energy consumption. The sectoral Action Areas include modern cooking appliances and fuels, distributed electricity solutions, grid infrastructure and supply efficiency, large-scale renewable power, industrial and agricultural processes, transportation, buildings and appliances. See Chapter 2, paragraph 2.3 of the GAA 2012.

⁵⁰⁵ The enabling Action Areas relate to cross-cutting mechanisms designed to support effective sectoral action, address existing obstacles, and catalyse rapid scaling. Under enabling Action Areas are grouped energy planning and policies, business models and technology innovation,

and establish a platform from which progress can be made across all linkages to achieve the three objectives of the UNSEI. The current African energy situation necessitates urgent action regarding the first objective of the Initiative, namely ensuring universal access to modern energy services. As indicated earlier, the terms “modern energy” and “sustainable energy” should not be seen as interchangeable. All sustainable energy sources should be modern energy sources but not the other way around. The question now remains – what should be understood under the term sustainable energy?

A prudent starting point in proposing a definition for the concept “sustainable energy” would be to consider the Brundtland Commission’s definition of “sustainable development” – namely – “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” In applying the definition of sustainable development to a concept such as sustainable energy one should be able to argue that in order for an energy source to be considered sustainable it needs to be able to promote development that is economically, environmentally and socially sound.⁵⁰⁶ Sustainable energy must also conform to the sustainable development principle of equity, while promoting the development of current and future generations. This translates into energy services that contribute to economic development, mitigate the environmental impacts related to energy developments, and improve the livelihoods of people in current and future generations. Specifically relevant to whether an energy source may be considered sustainable or not is the global environmental challenge of energy-related climate change and the cross-boundary and inter-generational impacts it is set to have on vulnerable regions. There is little if any doubt that the extent to which an energy source proves to be climate-friendly will correlate directly to the extent to which it is considered sustainable. As stated in earlier sections,⁵⁰⁷ sustainable development and the MDGs are mutually enforcing objectives of a common agenda, but in the opinion of the author one objective should take preference over the other. The intention is not to label one development objective superior to the other, rather to

finance and risk management and capacity building and knowledge sharing. See Chapter 2, paragraph 2.3 of the GAA 2012.

⁵⁰⁶ See paragraphs 2.2 and 2.3 above.

⁵⁰⁷ See paragraph 2.3 above.

argue that one development objective should be "the means" and the other "the end". The achievement of the MDGs should in this instance be seen not as a goal in itself but as mechanism effecting the promotion of sustainable development. Sustainable energy should undoubtedly therefore aim to promote the achievement of the MDGs but their achievement should be viewed as contributing to the promotion of sustainable development, not as the end goal. It is submitted that sustainable energy should be seen to refer to any modern energy source that mitigates environmental impacts, fosters economic growth and stimulates the social well-being of the current and future generations. In other words, sustainable energy is energy that promotes sustainable development. Bearing in mind the mutually inclusive nature of the relationship among the normative frameworks of the concepts of sustainable development, the MDG initiative and human rights, the concept of sustainable energy should be understood to encompass this normative overlap. Among the sources of modern energy to be included in the AU normative response to energy poverty, the Abuja Treaty makes express reference to nuclear energy.

4.11 Nuclear energy as a sustainable energy source

Whether nuclear energy should be regarded as a safe, reliable and climate-friendly modern energy source is a topic of debate among two distinct groups – those in favour of its application and those opposing it. A wide variety of challenges surround the application of nuclear energy ranging across economic, technical, societal, institutional and legal contexts. The most common challenge related to establishing or expanding nuclear energy is the financial implications associated with launching nuclear power programmes.⁵⁰⁸ Other issues which are often cited as challenges for

⁵⁰⁸ These include: the high capital cost and technical complexity of Nuclear Power Plants (NPPs), which present relatively high risks during both construction and operation; the relatively long period required to recoup investments or repay loans for NPP construction, which increases the risk from electricity market uncertainties; the often controversial nature of nuclear projects, which gives rise to additional political and regulatory risks; the need for clear solutions and financing schemes for radioactive waste management and decommissioning; the need for NPPs to operate at high capacity factors, preferably under baseload conditions; and the high share of fixed costs, which makes nuclear energy particularly vulnerable to price risk in sometimes volatile deregulated electricity markets. See Sokolov YA and McDonald A "The Nuclear Power Options for Africa" 2005 2 *African Technology Development Forum Journal* 14;

the future of nuclear power are the industrial infrastructure and supply chain, the availability of skilled labour, the issue of sourcing and enriching uranium resources, the siting of new plants, radioactive waste management, public acceptance, and finally, the development of the necessary institutional, regulatory and legal frameworks.⁵⁰⁹ Important environmental, health and safety issues⁵¹⁰ are also widely considered to be reasons for excluding nuclear energy from the global energy future. The dangers relating to the generation of nuclear energy as well as the challenges pertaining to its physical expansion should feature centrally in any policy decision pertaining to its implementation or expansion.⁵¹¹ At the end of 2010 there were 427 power reactors in operation in 30 countries around the globe.⁵¹² Overall, nuclear power provides around 13.4% of electricity globally and 21% of the electricity in OECD countries. With reference to nuclear expansion, 67 new power reactors were officially under construction globally at the end of 2012 – 27 of which are located in China. Other important nuclear expansions include various reactors being built in key OECD countries.⁵¹³ The serious nuclear accident which occurred early in 2011 at the Fukushima Daiichi power plant in Japan due to the occurrence of a major earthquake and tsunami, however, had a negative effect on the expansion of the generation of nuclear energy. As a consequence of this accident several countries decided to reverse their policies relating to nuclear energy, with Germany, Belgium and Switzerland choosing to phase out their existing fleet over the next two decades or abandoning plans to reintroduce nuclear energy, as was the case with Italy.⁵¹⁴ It

and OECD 2012 48 www.oecd-nea.org/nsd/reports/2012/nea6887-role-nuclear-low-carbon.pdf. [date of use 20 November 2010].

⁵⁰⁹ Nuclear Development The Role of Nuclear Energy in a Low-carbon Energy Future OECD 2012 9 -10 www.oecd-nea.org/nsd/reports/2012/nea6887-role-nuclear-low-carbon.pdf. [date of use 20 November 2010].

⁵¹⁰ These include the risk of nuclear accident, the risk of radioactive sources being implemented as weapons of mass destruction, and the handling and disposing of radioactive waste. See www.world-nuclear.org [date of use 20 November 2010].

⁵¹¹ For an overview of these challenges see: Barnaby and Kemp *Secure Energy? Civil Nuclear Power, Security and Global Warming* 14; Sovacool B and Cooper C "Nuclear nonsense: Why nuclear power is no answer to Climate Change and the World's Post-Kyoto Energy Challenges" 2008 *William and Mary Environmental Law & Policy Review* 33 1; Mudd G and Disendorf M "Sustainability of Uranium Mining and Milling: Toward quantifying Resources and Eco-Efficiency" 2008 *Environmental Science & Technology* 42 7 2624; Van Leeuwen *Health risks of nuclear power* 12-13; and Sovacool BK "Critically Weighing the Costs and Benefits of a Nuclear Renaissance" 2010 *Journal of Integrative Environmental Sciences* 7(2) 105.

⁵¹² IAEA PRIS www.prisweb.iaea.org. [date of use 20 November 2010].

⁵¹³ See OECD 2012 Chapter 4.

⁵¹⁴ OECD 2012 33.

is estimated that the global effect of the Fukushima nuclear disaster is a 10% drop in nuclear expansion at the international level.

This notwithstanding, a variety of energy roadmaps published in recent years has foreseen nuclear energy as a key role-player alongside renewable technologies and carbon capture and storage (CCS) in transitioning to a low-carbon energy future.⁵¹⁵ In the long term, the fundamental reasons for having nuclear power – the reduction of GHG emissions, the competitiveness of electricity production and the security of supply - still apply. Coupled with this, overall capacity is still expected to grow in coming years to match rising demands for electricity while and a shift to low-carbon energy sources.⁵¹⁶ Other factors include nuclear energy's strong performance as an alternative energy source,⁵¹⁷ energy forecasts showing persistent long-term growth,⁵¹⁸ the security of the fuel supply,⁵¹⁹ lower carbon emissions,⁵²⁰ and favourable policy developments.⁵²¹ Referring to nuclear energy's economic benefits, the arguments are that nuclear energy is the lowest cost option for new, low-carbon electricity generation and that its provision should stabilise the cost of electricity. The major environmental argument in favour of nuclear energy is that nuclear energy is a "clean, green" energy source - mainly due to the perceived low levels of GHG emissions. Looking to the social context, arguments in favour of the provision of new nuclear technology are that nuclear energy is safe and that it presents no health risks to the general public. Another argument commonly used to promote the application of nuclear energy as a sustainable energy source is its fuel security, with

⁵¹⁵ See IEA *World Energy Outlook 2011* and NEA *Nuclear Energy Outlook 2008*.

⁵¹⁶ OECD 2012 34.

⁵¹⁷ As reflected by 11 991 reactor-years of experience, lower generation costs and an excellent safety record. See Sokolov and McDonald 2006 *IAEA Bulletin* 15.

⁵¹⁸ Historical growth in worldwide nuclear generating capacity since 1960 and moving towards 2030 shows a steady growth rate of slightly over 2% per year – with the greatest growth rate indicated in the Far East. See IAEA 2005 25.

⁵¹⁹ With usage stabilized at 2008 rates of consumption, the total identified resources of uranium are sufficient for over 100 years of supply. See IAEA 2005 25.

⁵²⁰ The complete nuclear power chain, from resource extraction to waste disposal, including reactor and facility construction, emits only 1 – 6 grams of carbon equivalent per kilowatt-hour. This is about the same as wind and hydropower and well below coal, oil and natural gas. See Sokolov and McDonald 2006 *IAEA Bulletin* 16.

⁵²¹ Favourable developments include nuclear power expansion plans in key countries, including France. The United States promulgated new energy legislation in 2005 and its Nuclear Regulatory Commission is reviewing three applications for new reactors. See Sokolov and McDonald 2006 *IAEA Bulletin* 16.

specific reference to the claim that uranium reserves are sufficient for more than 600 years at current consumption rates and with the current technology.

Whether or not nuclear energy indeed qualifies as a sustainable energy source is, however, not a question to be answered in this thesis, nor is it necessary to consider the matter as the inclusion of nuclear power in a diversified energy mix aimed at sustainable energy generation is an express AU mandate. What is of relevance however, is the manner in which the implementation of nuclear energy in Africa should be regulated so as to ensure that it does indeed contribute to sustainable development. It is the submission of the author that the identification of sustainability indicators for nuclear energy in terms of a framework for sustainability assessment should be applied in this regard. These sustainability indicators are not intended as a way of indicating the sustainable nature of nuclear energy. Rather, these indicators should inform AU nuclear law and policy aimed at regulating the implementation of nuclear energy in such a manner as to promote sustainable development in Africa.

4.12 Sustainability indicators for nuclear energy

The sustainability indicators for the assessment of the potential of nuclear energy as a sustainable energy source originated as a result of the need to denote sustainability indicators specifically relevant to most of modern energy sources.⁵²² Referring to the generic energy sustainability indicators contained in the proposed assessment frameworks of the UN⁵²³ and the IAEA,⁵²⁴ the following set of sustainability indicators is proposed to embody a coherent framework of sustainability indicators of nuclear energy. The sustainability assessment frameworks of the UN and the IAEA pertinently refer to the indicators as guidelines

⁵²² The most prominent and widely used framework for sustainability assessment is that developed by the Global Reporting Initiative (GRI). The GRI is overtly geared towards the assessment the corporate level as opposed to sustainability assessment at the technical, project or policy level. See GRI 2006)

⁵²³ UN *Indicators* 2007.

⁵²⁴ See in general IAEA *Energy indicators*.

and methodologies for the application of modern energy as a factor promoting sustainable development. In accordance with the usual three-tiered notion of sustainable development, the sustainability indicators will be listed and briefly discussed under the headings of (techno-) economic indicators, social indicators, and environmental indicators.

4.12.1 Techno-economic indicators of the sustainability of nuclear energy

Techno-economic sustainability indicators (TESIs) determine how well and in what way a technology can be integrated into a country or a region's existing electricity mix.⁵²⁵ The TESIS cover various aspects of the different stages of the nuclear fuel cycle and address issues such as the operability of the nuclear power plant (NPP), technological lock-in, the immediacy of supply, the cost of operation, cost variability and financial incentives. The operability of an energy source refers to the way in which it functions within an integrated electricity mix. The operability of nuclear energy as TESI is further broken down into factors such as capacity,⁵²⁶ availability,⁵²⁷ "dispatchability"⁵²⁸ and the lifetime of fuel reserves.⁵²⁹ The factors comprising

⁵²⁵ Stamford L and Azapagic A "Sustainability indicators for the assessment of nuclear power" 2011 *Energy* 6043.

⁵²⁶ The capacity factor is the power output of a plant in a specified time expressed as a percentage of the maximum possible power output over the same time period had the plant been running continuously at full power. To reach a high capacity factor of up to 86% would necessitate running an NPP at consistently high loads. This capacity factor compares more than favourably with renewable energy capacity factors, specifically that of wind energy, which typically ranges between 25% and 35%. See IEEE 1987.

⁵²⁷ The availability factor is the percentage of time that an NPP is available to produce electricity. It differs from the capacity factor in that it includes time when the plant is fully functioning but not being used. It is widely considered as a measure of reliability and in the case of the operational fuel cycle of a typical light-water reactor, the highest theoretical availability factor is about 90%. This is due to the fact that these types of reactors necessitate periods ranging from 40 days to 18 months to refuel. This availability factor may increase dramatically in technologies which do not require shutting down to refuel. For an overview of the availability factors of different reactors see: www.nei.org/resourcesandstats/nuclear_statistics/fuelrefuelingoutages2010 [date of use 28 May 2013].

⁵²⁸ This relates to the ability of an NPP to increase or decrease generation, or to be brought on line and/or shut down as needed. Dispatchability is generally divided into technical dispatchability and economic dispatchability. For a more detailed overview of these concepts see Independent power producers of New York 2009 http://www.ippny.org/power_industry/glossary.cfm. [date of use 28 May 2013].

⁵²⁹ This topic was discussed at length under paragraph 5.2 above. As TESI, the lifetime of fuel reserves at the current extraction rate is a reflection of the current usage rate compared with the identified economically recoverable resources. The indicator should be seen as a best

operability as TESI cumulatively entail that nuclear energy may be viewed as sustainable as long as it is generated by NPPs running at maximum generating capacity. Technological lock-in describes a situation which causes an economic system to "gradually lock itself into an outcome not necessarily superior to alternatives, not easily altered, and not entirely predictable in advance".⁵³⁰ Placing this definition in the context of electricity generation – technological lock-in is the extent to which a choice of technology in the present day prohibits future changes in energy provision.⁵³¹ If, for example, a region opts for the development of large centralised power stations with long life-spans it runs the risk of being locked into an energy regime with little or no space for small-scale generation such as decentralised renewable energy. One way of addressing the challenges posed by technological lock-in is to assess the potential of lock-in with reference to two basic and measurable criteria, namely lifespan and flexibility.⁵³² It is submitted that a high degree of flexibility and a short lifespan are preferable in order to curb technological lock-in, as the former widens the boundaries for future energy expansion and provision while the latter provides for opportunities to introduce new/other technologies.⁵³³ This indicator is extremely relevant to a region such as Africa, which has a very limited degree of nuclear energy infrastructure and stands to risk technological lock-in if its nuclear energy expansion is not regulated in a sustainable fashion. Levelised cost of generation and cost variability are the final two TESI to be discussed and due to the inter-related nature of their definitions, they will be dealt with simultaneously. Levelised cost represents the average price that consumers would have to pay for the investor to break even and is calculated as the ratio of the total costs of generation and the total amount of electricity generated during the lifetime of a NPP.⁵³⁴ Cost variability relates directly to levelised cost in that it is

estimate of the global longevity of fuel supplies on the condition that current consumption rates and technologies remain the same. For uranium, the current figure stands at about 100 years. See IAEA/NEA 2010; and World Nuclear Association Supply of uranium 2010 www.world-nuclear.org/info/inf75.html. [date of use 28 May 2013].

⁵³⁰ Arthur WB "Competing technologies, increasing returns, and lock-in by historical events" 1989 *The Economic Journal* 116 at note 31.

⁵³¹ Stamford and Azapagic 2011 *Energy* 36 6044.

⁵³² The lifespan of a technology is relatively easy to quantify as years of expected lifetime. Flexibility on the other hand is slightly more subjective, but can be described in terms of the ability to cater for different energy requirements. See Stamford and Azapagic 2011 *Energy* 36 6044.

⁵³³ Austin 1997).

⁵³⁴ IAEA/NEA 2005.

expressed as the ratio of fuel cost to total levelised generation cost and serves to provide a measure of financial risk due to fluctuation in the price of fuel.⁵³⁵

4.12.2 Environmental indicators of the sustainability of nuclear energy

The environmental impacts of nuclear energy are in many instances deemed to be the most important sustainability indicators to consider when deciding upon nuclear expansion. The most common environmental criticisms levelled against the application of nuclear energy are the longevity of the radioactive waste and the hazards related to the use of fissionable materials which may be used in peaceful and non-peaceful manners. The environmental sustainability indicators (ESIs) discussed here once again pertain to the entire nuclear fuel cycle and include material recyclability, water eco-toxicity and acidification, global warming, biodiversity-loss, and the use and quality of land. Material recyclability as ESI is used to measure the extent to which materials used in the construction of a power plant are recycled, and pertains to reducing resource consumption and the increased sustainability of materials. Certain materials such as steel, glass and aluminium can be recycled many times over, making wind turbines (which are predominantly constructed of steel) highly recyclable.⁵³⁶ In contrast, material such as concrete – the material which is predominantly used in the construction of NPPs – can be only partially recycled, thereby reducing the recyclability of the plant. In addition to this, the radioactivity of the other materials used in the construction of an NPP serves to diminish its recyclability even more.⁵³⁷

⁵³⁵ In relation to other sources of energy and the fuel used in their technologies, fuel costs make up approximately 10% of the overall cost of nuclear energy. See Mit and Parsons 2009. This has the effect of limiting the impact of fuel price fluctuation on the cost variability of nuclear energy – a situation which is amplified by the fact that a large proportion of the fuel cost is attributed to fuel processing. See World Nuclear Association 2010 www.world-nuclear.org/info/inf02.html [date of use 29 May 2013].

⁵³⁶ Waste Watch 2005 www.wasteonline.org.uk/resources/InformationSheets/metals.html [date of use 28 May 2013]; and Ancona and McVeigh 2001.

⁵³⁷ WRAP 2010 www.aggregain.wrap.org.uk/specifier/materials/recycled_concrete.html [date of use 28 May 2013]; and AEA Energy 2008.

Water eco-toxicity and acidification are two sustainability indicators related to the massive impact on water sources of the generation of electricity. Fifty per cent of all water usage in the industrialised and developing world is attributed to electricity generation⁵³⁸ and as was stated in previous sections, nuclear energy ranks among the most water intensive forms of electricity generation. Above and beyond the water intensive nature of nuclear energy, which translates into a decrease in the availability of fresh water, the impacts on water quality are diverse and range from the emission of toxic compounds to an increase in temperature. The emission of acid gases such as sulphur dioxide, nitrogen oxides, hydrogen chloride and ammonia causes acidification of water sources and increases the mortality of aquatic organisms in lakes and rivers. High water eco-toxicity levels and acidification are related to the mining and milling of uranium and result in environmental impacts such as biodiversity loss due to the effect they have on species composition in both fresh- and marine water ecosystems.⁵³⁹ Another ESI which relates to the impacts of nuclear energy on water is eutrophication, which is the promotion of the growth of biomass in an aquatic ecosystem due to an influx of nutrients such as nitrogen and phosphorus.⁵⁴⁰ This increase in aquatic biomass results in depleted oxygen for existing aquatic life forms, thereby contributing to biodiversity loss.⁵⁴¹ The impact on biodiversity is a sustainability indicator which should be very seriously considered by AU policy-makers, seeing as the African continent is not only host to various biodiversity hotspots but that many Africans depend upon that biodiversity for their livelihoods.

A true assessment of nuclear energy's potential as a sustainable energy source would not be complete without reference to the impact it is set to have on global climate change. This refers to the carbon emissions connected with nuclear energy and, as was indicated above, the low carbon emissions of nuclear energy serve to underline the climate-friendly nature of this source of electricity. An advantage

⁵³⁸ Turnpenny and Coughlan *Using water well* 110.

⁵³⁹ Berger M and Finkbeiner M "Water Footprinting: How to Address Water Use in Life Cycle Assessment?" 2010 *Sustainability* 920; and Hogg P, Squires P and Fitter AH "Acidification, nitrogen deposition and rapid vegetational change in a small valley mire in Yorkshire" 1995 *Biological Conservation* 143.

⁵⁴⁰ Stamford and Azapagic 2011 *Energy* 36 6047.

⁵⁴¹ Guinée ea *Handbook on life cycle assessment* 692.

connected with nuclear energy's low emission levels is its potential role in mitigating energy-related climate change. In this regard, the Blue Map scenario proposed by the IEA in its 2010 Energy Technology Perspective is relevant. The Blue Map scenario illustrates the contribution of different energy technologies to reaching the overall target of GHG emission mitigation in the most economically efficient manner. The Blue Map scenario suggests that by 2050 nuclear energy will have grown from its current thirteen percent global energy contribution to a contribution of twenty-four per cent towards global electricity supply resulting in a fifty per cent decrease in energy-related CO₂ emissions. Looking towards the energy future portrayed by the Blue Map scenario, nuclear energy will be the single largest source of electricity, surpassing coal, natural gas, hydro, wind and solar energy by the year 2050.⁵⁴²

The final ESI to be dealt with is that of land use and quality, which encompasses factors such as land occupation, greenfield land use and terrestrial eco-toxicity. Land occupation is a measure of the total land occupied throughout the life cycle and the period for which the said land is unavailable for other uses – in other words, the extent to which the land is "locked" against other uses. Considering the relatively long life cycle of an average NPP of forty years, which includes the construction and the operational phase but does not include decommissioning, which adds several more years,⁵⁴³ it is evident that the land occupation factor for nuclear energy is high. It must, however, be said that the African continent's relatively low population density, especially in rural areas, impacts positively upon the impacts of nuclear energy on land occupation. Greenfield land use relates once more to the effect of nuclear energy on biodiversity and represents the percentage of land converted from its near-natural state relative to the total amount of land used for the construction of an NPP. It is evident that this indicator relates directly to the siting of NPPs and moreover the potential biodiversity loss resulting from siting new building projects in or adjacent to greenfield areas, which include farmland, woodlands and marshlands.⁵⁴⁴ Once again, considering the value of Africa's precious biodiversity, the environmentally sustainable siting of NPPs is a factor which is critical in ensuring

⁵⁴² NEA 2009 4; OECD 2012 36.

⁵⁴³ Stamford and Azapagic 2011 *Energy* 36 6047.

⁵⁴⁴ Stamford and Azapagic 2011 *Energy* 36 6047; and GRI 2007.

the sustainability of nuclear energy in Africa. In the final instance, terrestrial eco-toxicity as ESI, in much the same fashion as water eco-toxicity, relates to the impact of nuclear energy on water sources. The terrestrial eco-toxicity factor of nuclear energy is not as high as the water eco-toxicity level but it is still a relevant factor, especially considering the impact of radioactive waste on current and future land use as well as its impact on biodiversity loss.

4.12.3 Social indicators of the sustainability of nuclear energy

The social sustainability indicators (SSI) pertinent to nuclear energy are not as well-developed as the TESIs and ESIs but are just as important in assessing nuclear energy as a sustainable energy source. The SSIs pertain to a variety of factors which relate to the potential impacts the application of nuclear energy might have upon the social component of the eco-system – in other words, people. These include the provision of employment; risks to human health and the risk of the occurrence of a large accident (such as the event at Chernobyl and more recently, Fukushima); impacts on local communities; human rights; energy security; nuclear proliferation; and equity. Accounting for direct employment⁵⁴⁵ as well as indirect employment,⁵⁴⁶ the construction of a single new nuclear reactor provides over 1000 jobs for approximately six year.⁵⁴⁷ This number is not absolute, mainly due to the fact that the employment provided by a power plant varies greatly though its life cycle. This SSI is therefore usually expressed in terms of the number of employees needed per year per the total amount of electricity generated.⁵⁴⁸ The human health risks related to the generation of nuclear electricity range from workplace accidents to the more widespread detriments associated with toxic emissions. In order to

⁵⁴⁵ Direct employment refers to employment created in the life cycle of the power plant – in other words during the construction, operation, maintenance and decommissioning.

⁵⁴⁶ Indirect employment refers to the employment created alongside the supply chain as a result of the plant's existence. These jobs include mining, fuel production, waste management and other services to the plant during its lifetime. Stamford and Azapagic 2011 *Energy* 6048

⁵⁴⁷ Cogent 2010 18.

⁵⁴⁸ This would mean that if 1000 people are employed for six years during the construction of the reactor and 500 people are employed during the operation of the plant over 60 years then the total employment expressed in persons per year would be calculated as: $(1000 \times 6) + (500 \times 60) = 36\,000$. This number is then divided by the total electricity output throughout the lifetime of the power plant. See Stamford and Azapagic 2011 *Energy* 6048.

assess the impacts on human health as fully as possible the incidence of worker fatalities, the potential for toxic contamination and the potential health impacts from radiation (HIR) will be used as indicators along the entire fuel cycle of the NPP. It must be stated that fatalities from large accidents will not be dealt with under this heading, but will be discussed in subsequent sections. Worker fatalities as SSI measure the number of deaths per unit of electricity generated. The human toxicity potential expresses the potential harm to humans from toxic substances emitted in the life cycle of energy generated and is calculated applying the same method applicable to water- and eco-toxicity. In the final instance, HIR are measured for both workers and the general population and are expressed in terms of disability-adjusted life years (DALY) in line with the WHO "burden of disease" measurements.⁵⁴⁹ Applying this method to the nuclear energy life cycle shows that the nuclear life cycle (if reprocessing is excluded) results in approximately 0,02 DALY/Gigawatt hour (GWh).

Large accident risk is most probably the single most important SSI in the mind of the general public due to the human fatalities connected particularly with the accidents at Chernobyl and Fukushima. The Chernobyl nuclear disaster resulted in 56 direct deaths (47 workers killed in the accident and nine children who died of thyroid cancer) with estimates surrounding latent deaths ranging from 8250⁵⁵⁰ to over 200 000.⁵⁵¹ As of mid-2012 no deaths have been directly attributed to the Fukushima nuclear disaster, while some estimates point toward "a very preliminary order-of-magnitude guesstimate" that "one might expect around 1 000 extra cancer deaths related to the Fukushima Daiichi accident".⁵⁵² This indicator measures the number of fatalities due to large accidents over the life cycle of electricity generation and is expressed per unit of electricity generated. A comparison of the fatality rates of nuclear energy and coal shows that while coal has a 25 times higher fatality rate

⁵⁴⁹ WHO 2011 www.who.int/healthinfo/global_burden_disease/metrics_daly/en/index.html. [date of use 28 May 2013].

⁵⁵⁰ Cardis E, Anspaugh L, Ivanov VK, Likhtarev IA, Mabuchi K, Okeanov AE "Estimated long term health effects of the Chernobyl accident" in *One decade after Chernobyl: summing up the consequences of the accident* (IAEA, Vienna 1996) 241.

⁵⁵¹ Greenpeace *The Chernobyl catastrophe* 25.

⁵⁵² von Hippel FN "The radiological and psychological consequences of the Fukushima Daiichi accident" 2011 67 (5) *Bulletin of the Atomic Scientists* 27–36.

than nuclear energy, the total number of ultimate fatalities from a physical nuclear accident is twenty-four times higher than that of coal-related accidents.⁵⁵³ Local community impacts span both positive and negative aspects, which include the provision of employment, thereby contributing to the community's general development and welfare on the one hand and health impacts on the other. Indicators such as the proportion of staff hired from local communities, the proportion of spending on local suppliers and direct investment in local communities should be applied to ascertain the sustainability of nuclear energy and should span the construction, operation and decommissioning stages. Another SSI relating specifically to nuclear security is nuclear proliferation. As will be elaborated upon in subsequent sections, nuclear proliferation can be defined as the spread of nuclear weapons and weapons technology and, in recent years, the possibility of terrorist attacks on nuclear facilities.⁵⁵⁴ The factors which should be considered when assessing this indicator of nuclear sustainability are: the ease with which nuclear weapons material might be produced from nuclear reactors; the ease with which nuclear weapons material might be obtained from the fuel cycle; and the effect of the possession certain technologies on global non-proliferation efforts. These factors will be elaborated upon in a subsequent discussion, in Chapter 6 below, in a discussion of the IAEA nuclear legal framework.

In the final instance, though listed as a social indicator of nuclear energy's sustainability, inter-generational equity spans the environmental, economic and social domains of sustainable development. Maintaining resources for future generations lies at the core of sustainable development, but in the context of energy generation is it difficult to define in a universally acceptable manner, given the different forms of capital or resources which might well be maintained. Inter-generational equity cannot be separated from intra-generational equity and entails that, while the present generation has a right to use and enjoy the resources of the earth, it is under an obligation to take into account the long-term impact of its

⁵⁵³ This number is derived using probabilistic risk assessment which is not a failsafe method of ascertaining concrete fatality rates both in the absence of more reliable data and estimation approaches, these results can be used as an indication of the ranges of possible fatalities from a large accident related to nuclear energy. See Stamford and Azapagic 2011 *Energy* 6048.

⁵⁵⁴ *IAEA Treaty for Non-Proliferation of Nuclear Weapons*, 1970.

activities and to sustain the resource base and the global environment for the benefit of future generations of humankind.⁵⁵⁵ In the context of electricity generation, three main issues related to inter-generational equity should be considered, namely climate change, abiotic resource depletion and long-lived hazardous materials.⁵⁵⁶ The first two aspects were discussed as techno-economic and environmental indicators in foregoing sections and will not be further elaborated upon here. The production of long-lived hazardous radioactive waste from the generation of nuclear energy has obvious consequences for future generations, due to the possibility of its leaking accidentally and the burden of monitoring its safety for long time periods. The risk of accidental leakage is difficult to quantify due to the lack of operating repository experience and site-specific information as well as difficulties in establishing an agreed time-frame.⁵⁵⁷ The long-term monitoring burden which is placed on future generations can be expressed by using the amount of waste (or waste storage facilities) that requires monitoring as a rough proxy. The calculation of the precise amount of radio-active waste produced by an average nuclear reactor over its entire fuel cycle is extremely technical and will not be attempted here.⁵⁵⁸ What is of relevance, however, is to note that the amount of waste produced by coal-fired plants is roughly 18 000 times greater than the volume of nuclear waste over the same time period. The fact that the volume of nuclear waste is far less than coal waste should, however, not be used to negate the differences in the potential severity of their release into the environment.

The challenges and objections surrounding nuclear energy have been identified and discussed and it is acknowledged that they should remain important considerations when implementing a nuclear energy programme. The same argument applies to the sustainability indicators of nuclear energy as factors for assessing the potential contribution of the application of nuclear energy to the promotion of sustainable development. However, it is very important not to lose sight of the various advantages connected with the implementation of nuclear energy in any given

⁵⁵⁵ See paragraph 3.4 above.

⁵⁵⁶ Stamford and Azapagic 2011 *Energy* 6050.

⁵⁵⁷ Stamford and Azapagic 2011 *Energy* 6051.

⁵⁵⁸ For an overview of the methods used to calculate the amount of radioactive waste, see Stamford and Azapagic 2011 *Energy* 6051.

energy mix. These advantages include but are not restricted to a range of environmental, technical, economic and health aspects which include high energy density,⁵⁵⁹ low levels of GHG emissions,⁵⁶⁰ small quantities of waste, security of supply and a wide range of applications. In any given country or region which chooses to harness nuclear technology in electricity generation, the policy and law aimed at regulating this activity is extremely important. This is true for the African continent as the inclusion of nuclear energy in its energy future is expressly provided for in terms of explicit regional and sub-regional mandates. These will be elaborated upon in Chapter five hereafter.

4.14 Conclusion

The nature of the relationship between the MDGs and human rights formed the starting point for the proposition that human rights, both international and regional, should provide the legal basis for promoting sustainable development in Africa. From the outset of the discussion relating to the relationship between the MDGs and human rights, the existence of such a relationship was neither denied nor questioned. Most spectators are of the opinion that the MDGs and human rights are intrinsically linked in terms of their objectives, their principles (of which human dignity is one) and their processes. Of significant relevance to the current research would be to ascertain the nature of the relationship which exists between the MDG initiative and human rights, and if this indeed could constitute a postulate whereby rights which are indispensable to the notion of human dignity could be derived from existing human rights. Reason would then lead towards a situation whereby rights which are indispensable to the achievement of the MDGs (which are based on the principle of human dignity) could, in the same, fashion be derived from existing human rights.

⁵⁵⁹ The term energy density relates to the quantity of fuel needed to produce a given amount of energy. In other words, one kilogram of firewood can generate one kilowatt-hour of electricity. In assessing nuclear energy's energy density in comparison with the most popular fossil fuel, namely coal, it is incredible to note that for one kilogram of coal only three kilowatt-hour of electricity is produced while the same amount of uranium produces fifty thousand kilowatt-hour of electricity.

⁵⁶⁰ IAEA 1996.

With regard to the nature of the relationship between the MDGs and human rights, it was concluded that the relationship should be labelled as mutually compatible although strong mutual reinforcement is lacking.⁵⁶¹ A way of addressing this situation and fostering a relationship between the two initiatives which is inclusive and supportive would be to introduce an MDG rationale for pursuing a variety of existing economic and social rights. This would serve to promote a contextualised MDG approach within a human rights framework, one which was flexible and could be adapted to different circumstances and needs. The contextualised MDG approach holds that development strategies (whether international or regional) should reflect the human rights agenda. A practical method of ensuring such an approach, as suggested by the author, is to direct development efforts towards the realisation of existing (and legally binding) human rights. In this regard, the right to development as an inalienable international human right is relevant.⁵⁶²

The challenge to the realisation of the right to development by addressing energy poverty in Africa served as the backdrop for proposing that a right to energy be derived from existing AU human rights. In the first instance it was established that the lack of access to modern energy falls within the ambit of social service poverty, while the reliance on traditional biomass resorts under environmental poverty.⁵⁶³ The detrimental impacts related to these two issues should be seen to constitute a situation which undermines not only the achievement of the MDGs but also the capacity of Africans to lead a dignified human existence. Secondly, the relationship between the achievement of the MDGs, access to modern energy, and the relevant social and economic rights served as the basis for indicating the extent to which access to modern energy is indispensable to a notion of human dignity. The revised form of Tomuschat's test provided the theoretical basis for the argument that it is possible to derive a right from existing international economic and social rights so long as the existing social and economic right is intrinsically linked with human

⁵⁶¹ See paragraph 4.5 above.

⁵⁶² See paragraph 4.6 above.

⁵⁶³ See paragraph 4.7 above.

dignity. The derivative right will find its status and application within the normative status of the social and economic right it was derived from.⁵⁶⁴

The legal approach to the formulation of a right to energy as an AU human right exist within General Comment 15 of the CESCR at the international level and several Communications of the ACHPR at the AU regional level. The methodology applied by the CESCR in reading in the right to water by means of an teleological interpretation of articles 11 and 12 of the ICESCR provided the conceptual basis for the author's argument. It was established that certain rights, though not expressly mentioned in the texts of human rights instruments, may be read in, in order to ensure the full realisation of explicit rights. In other words, the apparent omission of a specific right should not be taken as an indication that the right does not exist or should not be included in the text of treaties. If it can be indicated that the omitted right is demonstrably indispensable to the realisation of an explicit right, the omitted right should be read in. This approach is applied in a number of ACPHR Communications, most notably the SERAC and Endorois cases. In both these cases the reading in of omitted rights into the Banjul Charter was justified by linking their inclusion to the realisation of explicit AU human rights.⁵⁶⁵

On the strength of the methodology applied by the CESCR and the ACHPR, the author argued the following. The right to energy is indispensable to the realisation of the right to development and the right to a general satisfactory environment favourable to development - both explicit AU human rights. The right to energy should therefore be read into the provisions of the Banjul Charter as a right congruent to the realisation of the explicit rights mentioned above. The proposed right to energy should furthermore serve as the legal basis for the AU's normative response to the challenge of energy poverty, namely increasing access to modern energy in Africa. It is concluded that the full realisation of the right to development and the right to a generally satisfactory environment favourable to development depends upon the promotion, protection and implementation of the proposed right to

⁵⁶⁴ See paragraph 4.8 above.

⁵⁶⁵ See paragraph 4.9 above.

energy at the AU level. Furthermore, the normative response of increased access to a modern energy source should be embodied in coordinated regional energy law and policy based on regional cooperation among AU member states.

The formulation and establishment of coordinated regional energy policy and programmes aimed at increasing access to modern energy is prescribed by the UNSEI and NEPAD in order to facilitate the promotion of sustainable development. The UNSEI in particular refers to the concept of sustainable energy. When one attempts to define the concept of sustainable energy, the normative landscape created by concepts such as sustainable development, the MDGs and the human rights regime once again prove relevant. In the first instance it was established that while most of the regional and sub-regional initiatives on increased energy access refer to modern energy, some indeed refer to the sustainable energy. This led to the conclusion that modern energy and sustainable energy could not be regarded as interchangeable concepts and should indeed be differentiated. To this end it was stated that while sustainable energy can always be called a modern energy source, not every modern energy source can be called a sustainable energy source. In sum, a sustainable energy source, in the opinion of the author, is any modern energy source the application of which results in economic growth, limited environmental impacts and the social betterment of the African continent.⁵⁶⁶ The express mandate for the inclusion of nuclear energy into a diversified African energy mix capable of promoting sustainable development, led to an analysis of the energy sustainability indicators contained in the assessment frameworks of the UN and the IAEA.⁵⁶⁷ For the purposes of the current research, the indicators were grouped under three main headings, namely: techno-economic indicators,⁵⁶⁸ environmental indicators⁵⁶⁹ and social indicators⁵⁷⁰ and would include all stages in the nuclear fuel cycle.

⁵⁶⁶ See paragraph 4.10 above.

⁵⁶⁷ See paragraph 4.11 above.

⁵⁶⁸ For an overview of these indicators see paragraph 4.12.1 above.

⁵⁶⁹ For an overview of these indicators see paragraph 4.12.2 above.

⁵⁷⁰ For an overview of these indicators see paragraph 4.12.3 above.

The various factors comprising the different sustainability indicators are all relevant to African policy-makers and should be considered intensively when deciding upon the expansion of nuclear energy. In the opinion of the author some of these indicators should, however, in the specific context of Africa's development, factor in more heavily. In this regard, the most important techno-economic indicators in the African context would be those of the initial cost of launching a nuclear power programme; technology lock-in;⁵⁷¹ and the levelised cost of generation.⁵⁷² African countries would undoubtedly be forced to accept foreign direct investment in order to be economically able to launch nuclear power programmes – a situation which is not necessarily beneficial to LDCs. The economic impact on impoverished electricity consumers is very relevant in the African context as extreme poverty which prevails throughout the region will almost certainly result in further subsidies from outside investors. This situation might be remedied by sticking to off-grid renewable energy options for the rural poor, while electricity from nuclear energy is predominantly generated for commercial and urban uses. Regarding technology lock-in, the principle of equity among current generations and between current and future generations should be considered. Excluding decommissioning, the average life-span of an NPP ranges between forty and fifty years⁵⁷³ which, in practical terms, means that future generations will be locked into nuclear technology. The decision to launch an African nuclear power programme will effectively force future generations to use the technology, especially considering the physical infra-structure taken to establish the NPP, the economic burden of decommissioning it, and the need for waste management thereafter.

The sustainability indicators of nuclear energy pertaining to the impact its application is set to have on the African environment are extremely important, especially in the context of Africa's rich biodiversity. Biodiversity loss due to water eco-toxicity and acidification⁵⁷⁴ - alongside land-use and -quality⁵⁷⁵ - is an environmental impact which should feature centrally in the decision-making processes of AU policy-

⁵⁷¹ See paragraph 4.12.1, notes 531 and 532 above.

⁵⁷² See paragraph 4.12.1, notes 535 and 536 above.

⁵⁷³ See paragraph 4.12.1, note 544 above.

⁵⁷⁴ See paragraph 4.12.2, notes 541 and 542 above.

⁵⁷⁵ See paragraph 4.12.2, note 545 above.

makers. Coupled with these environmental indicators, is the fact that nuclear energy features among the most water-intensive forms of modern energy – a factor which is critically important in the water-scarce regions of Africa. The potential environmental impacts (both inter- and intra-generational) of a radioactive waste leak or a nuclear accident are also extremely important to consider, particularly with reference to the social impacts they would have.⁵⁷⁶ In the final instance, nuclear energy's sustainability potential and the fact that its use would not contribute to global climate change must be stressed. Nuclear energy is less carbon-intensive than its fossil fuel counterparts, but it is still much more carbon-intensive than any single source of renewable electricity. What is extremely relevant, however, is the important role nuclear energy will play in mitigating global energy-related climate change.⁵⁷⁷ Considering the extreme impacts climate change is set to have on the vulnerable African continent, this is an indicator which in the mind of the author embodies a "positive" environmental impact.

The social indicators of the sustainability of nuclear energy pertain moreover to the impact nuclear energy will have on local communities. The general public is inclined to be concerned with the risk of nuclear accidents, their impacts on human health, and the resulting fatalities. Connecting a concrete fatality statistic to nuclear energy is difficult, but estimates show that in the case of an actual physical nuclear accident, the ultimate fatalities would be 24 times higher than in the case of coal-related accidents.⁵⁷⁸ An overview of other SSIs such as the generation of employment, energy security and nuclear proliferation highlight the interplay among the beneficial and detrimental aspects of nuclear energy. What is of great significance, however, is realising that most of the factors comprising the economic, environmental and social sustainability indicators of nuclear energy relate to a vital principle in the notion of sustainable development - the principle of equity, both inter- and intra-generational.⁵⁷⁹ This principle lies at the very core of the concept of sustainable development, and in the context of nuclear electricity generation relates primarily to climate change, abiotic resource depletion, and the production of long-lived

⁵⁷⁶ See paragraph 4.12.3, notes 556 and 557 above.

⁵⁷⁷ See paragraph 4.12.2, note 543 above.

⁵⁷⁸ See paragraph 4.12.3, note 551 above.

⁵⁷⁹ See paragraph 4.12.3, notes 556 and 557 above.

hazardous waste. The legal frameworks aimed at regulating the expansion or establishment of nuclear power programmes on the African continent needs to be formulated with careful consideration of the technical, social and environmental sustainability discussed above. Especially important in this regard is the inter- and intra-generational nature of the impacts related to the different sustainability indicators of nuclear energy.

The various factors comprising the different sustainability indicators are all relevant to African policy-makers and should be considered carefully when formulating law and policy aimed at regulating nuclear energy expansion. The mandate for the inclusion of nuclear energy in a diversified African energy mix aimed at sustainable energy generation is expressly mentioned in the Abuja Treaty.⁵⁸⁰ Provisions contained in the Abuja Treaty as well as the CAFREC furthermore provide that regional cooperation is indispensable in achieving the objective of promoting sustainable development in AU member states and in the continent as a whole.⁵⁸¹ The topic of regional cooperation and coordinated regional law and policy will be discussed at length in chapter 5 of this thesis.

⁵⁸⁰ See paragraph 2.6.4, notes 208 and 209 above.

⁵⁸¹ See paragraph 2.6.4, note 210 above.

5 Regulating increased access to modern energy: the role of coordinated AU legal frameworks

5.1 Introduction

The Constitutive Act as well as the Abuja Treaty refer to the important role regional cooperation must play in the formulation of regional policies geared towards the promotion of sustainable development. With reference to the topics to be regulated in terms of the regional policies envisaged, the Constitutive Act refers to “all fields of human activity related to raising the living standards of African peoples”.⁵⁸² While the Constitutive Act itself does not go on to define the concept of “all fields of human activity”, it is put forward that the provisions of the Abuja Treaty relating to “aspects of human endeavour” provide the necessary context. The Abuja Treaty makes mention of a host of “aspects of human endeavour” which should enjoy the cooperative attention of AU policy makers, of which coordinated energy and natural resources policies is one. Accordingly, cooperative action on energy in the AU needs to be geared towards the effective development of the continent’s energy and natural resources, to the diversification of energy sources, and to the establishment of an effective and adequate mechanism for a collective solution to the AU’s energy development challenges.⁵⁸³ The formulation and implementation of coordinated regional energy policies based on cooperation among member states should therefore be seen as a mechanism effecting the promotion of the sustainable development of the continent. The coordinated regional energy policies resulting from regional cooperation will furthermore serve to facilitate progress towards AU regional integration.

Focusing on the continental (AU level) as well as the sub-regional level (RECs), regional integration as an objective will be investigated within the context of

⁵⁸² Articles 3(k) and 3(l) of the Constitutive Act.
⁵⁸³ Article 54(a), (c) and (f) of the Abuja Treaty.

developmental regionalism. With reference to the coordinated regional and sub-regional policies, programmes and strategies resulting from developmental regionalism, attention must be paid to the over-arching regulatory objective of promoting sustainable development. Therefore, increased access to sustainable energy as a regional regulatory objective should be regulated in terms of coordinated regional law and policy based on regional integration within the normative context of developmental regionalism.

Of the 427 NPPs currently operating around the world⁵⁸⁴ only two are situated in Africa⁵⁸⁵ while none of the NPPs under construction worldwide are on this continent.⁵⁸⁶ This notwithstanding, the AU has made clear its intention regarding the preservation of existing NPPs and an increase in the number of NPPs through various provisions contained in regional legal instruments, specifically the Abuja Treaty.⁵⁸⁷ At the AU level, the Constitutive Act, the Abuja Treaty and NEPAD recognise the link between regulating regional energy activities by means of harmonised regional energy law and policy and achieving the objective of promoting the development of the continent.⁵⁸⁸ The overriding objective of these regional legal instruments is the promotion of sustainable development facilitated by cooperation among member states through the harmonisation of policies, programmes and legal and regulatory frameworks pertaining to nuclear energy, among other things. The mandate contained in these legal instruments has been proved to provide the starting point for the establishment of nuclear law and policy as well as of initiatives for nuclear energy expansion, which two features together comprise the current AU nuclear legal framework.

⁵⁸⁴ Schneider ea 2013 6.

⁵⁸⁵ Koeberg-1 and Koeberg-2 are situated on the Western Coast of South Africa. These two 900 MW(e) pressurized water reactors have been operational since 1984 and 1985 respectively. Ten countries around the continent, including Algeria, The Democratic Republic of the Congo, Egypt, Ghana, Libya, Morocco, Nigeria and South Africa also have operational research reactors. See Sokolov and McDonald 2005 *African Technology Development Forum Journal* 12.

⁵⁸⁶ Sokolov and McDonald 2005 *African Technology Development Forum Journal* 12.

⁵⁸⁷ See paragraph 1.1 above.

⁵⁸⁸ See Article 3(j) – (m) of the Constitutive Act; article 4(2) of the Abuja Treaty; paragraph 113 of NEPAD.

The main aim of this chapter is two-fold. First, regional integration and its role in facilitating the formulation of coordinated AU law and policy on increasing access to modern energy will be analysed. Second, the chapter will attempt to identify a coordinated AU nuclear legal framework as a factor contributing to the achievement of the objectives of increased access to modern energy and the promotion of sustainable development in Africa. In so doing, a series of related topics will be discussed. In the first instance, an overview of the AU regional integration normative and organisational structure will be provided as an introduction and background to the rest of the chapter. This will be followed by an exposition of the current status of regional integration at the AU level with specific focus on the challenges to the process of African integration. After having established the mandate for regional cooperation on the formulation and establishment of regional and/or sub-regional policies and programmes aimed at increasing access to modern energy in Africa, existing sub-regional initiatives will be discussed. The mandate for the inclusion of nuclear energy as part of a diversified African energy mix will then provide the backdrop for a discussion of the current AU nuclear legal framework. In this regard an overview of the existing AU nuclear legal framework and the respective strategies and tools for the implementation of the different nuclear energy initiatives will be provided.⁵⁸⁹ The provisions of various regional legal instruments provide for the establishment of regional legal frameworks based on cooperation among member states on the one hand and member states and the international community on the other. The establishment of a regional nuclear energy legal framework will not only prove to be the main recommendation of the current chapter but will also serve as an introduction to the question of what should be seen to constitute the components of a regional nuclear energy legal framework.

5.2 Regional cooperation and its role in facilitating increased access to modern energy

⁵⁸⁹ While reference might be made to the energy law and policies of regional economic communities such the EAC, ECOWAS and SADC, the main scope of the research undertaken for this section of the current chapter will focus on the AU legal position.

In its first Technical Report⁵⁹⁰ the Secretary-General's High-level Group on Sustainable Energy for All refers explicitly to the dire situation of the African continent regarding access to modern energy sources. This situation is both a contributing factor as well as a result of the wide-spread poverty and under-development characterising African LDCs specifically and the AU in general. Lack of access to modern energy is a problem of both development and governance, and addressing it demands strong political commitment as well as cooperation at the regional level on topics such as policy formulation and regional integration. It is accordingly the hypothesis of the author that energy poverty which is characterised by a lack of access to modern energy at the African regional level needs to be addressed in terms of coordinated energy policies and strategies aimed at improving access to modern energy sources. This could be achieved by including or integrating increased energy access as a regulatory objective into existing regional development policy on the one hand and into existing and future energy initiatives on the other. Regional development policy and regional energy policy should, however, not be thought to exist exclusively from another. Both policy frameworks should reflect the broader strategy of promoting sustainable development⁵⁹¹ and should find their bases in cooperation among member states, aimed at increased regional and/or sub-regional integration.

The JPOI as well as the 2005 UN-Energy Report expressly note the correlation between access to modern energy sources and the promotion of sustainable development via the achievement of the MDGs. These provisions, read in conjunction with the mandate contained in the NEPAD regarding the establishment of regional initiatives or strategies for improved access to modern energy, should serve as the impetus for regional action to scale up such access. In order to give effect to the mandate contained in the NEPAD, the UN Secretary-General, in accordance with the reform agenda envisaged by the NEPAD, urged the establishment of regional consultative meetings with the purpose of coordinating the

⁵⁹⁰ Technical Report 2012.

⁵⁹¹ Technical Report 2012 3.

efforts of different UN agencies and organisations at the African level.⁵⁹² To this end the UN-Energy Africa (UNEA) was established in 2004 as a subsidiary of UN-Energy in order to ensure a linkage between global and regional energy issues and serve as the regional collaborative framework with the objective of promoting more efficient, coherent and coordinated actions on the issue of energy for development in Africa.⁵⁹³

NEPAD is a programme adopted by the AU in 2001 in terms of the provisions of the Constitutive Act and is based on the objectives of eradicating poverty and promoting the sustainable growth and development of the African continent.⁵⁹⁴ After its adoption in 2001 NEPAD became the economic programme of the AU. Its adoption by the AU was followed by its international recognition as Africa's official development plan through the resolutions of the UN General Assembly.⁵⁹⁵ The recognition of NEPAD at the regional and international levels, however, does not transform NEPAD into a binding instrument. NEPAD is not a treaty, nor is it a convention containing legally binding provisions.⁵⁹⁶ Notwithstanding the NEPAD's lack of legal status, the promotion of sustainable development should be regarded as the general agenda of the NEPAD, and any activity proposed by the NEPAD should have the effect of contributing towards the overall sustainable development of member states individually or the continent as a whole. It is possible at this point to hypothesise that legal frameworks geared towards regulating any activity proposed by NEPAD should also contain and aim to realise the objective of promoting sustainable development. The agenda of sustainable development contained in the NEPAD is focused on national and regional priorities and development plans that need to be prepared and implemented in terms of the principle of participation.⁵⁹⁷ To this end the NEPAD contains an action plan in terms of which certain priority sectors directly linked to sustainable development are identified. These priority sectors form the basis for specific goals which cut across the social, environmental and economic

⁵⁹² In Africa, the UN agencies supporting the AU and the NEPAD are organised under thematic clusters. Energy forms part of the infrastructure cluster. See UNECA 2007 1.

⁵⁹³ UNECA 2007 1.

⁵⁹⁴ See paragraph 1 of the NEPAD.

⁵⁹⁵ UN General Assembly Declaration (A/RES/57/2) and the Resolution on NEPAD (A/RES/57/7).

⁵⁹⁶ Kamga *Human rights in Africa* 255.

⁵⁹⁷ See paragraph 47 of the NEPAD.

spheres.⁵⁹⁸ With reference to the attainment of these goals, the NEPAD acknowledges that certain conditions are conducive to the promotion of sustainable development. These include peace, security, democracy, good governance, respect for human rights, and sound economic development.⁵⁹⁹ These conditions or principles, as they are also referred in the text of the NEPAD, should form the basis of regional and sub-regional initiatives focused on the promotion of sustainable development.⁶⁰⁰ These regional and sub-regional initiatives should be geared towards promoting the participation of member states in establishing concrete and time-bound programmes pertaining to the provision of essential regional public goods.⁶⁰¹

Energy is identified as one of these essential regional public goods, and the NEPAD also stresses the critical role energy plays in the development process.⁶⁰² The NEPAD's objectives related to access to energy include increasing access to reliable and affordable commercial energy by 25% over 20 years and providing reliable and affordable energy to service productive activities in order to improve economic growth.⁶⁰³ The provisions related to the establishment of regional and/or sub-regional initiatives geared towards the promotion of sustainable development via harmonised regional programmes coupled with those related to the objectives related to energy should be seen as comprising the mandate for establishing regional initiatives or strategies on improving modern energy access.⁶⁰⁴

⁵⁹⁸ The goals contained in the NEPAD relate to the MDGs and include the reduction of poverty, increasing the number of children enrolled in schools, improving gender equality, reducing child and infant mortality, reducing maternal mortality, improving access to health care, and the implementation of national strategies for sustainable development. For an overview of these goals see paragraph 68 of the NEPAD.

⁵⁹⁹ See paragraph 72 of the NEPAD.

⁶⁰⁰ The NEPAD identifies three initiatives based on the principles referred in paragraph 72 of its text. These initiatives are the Peace and Security Initiative, the Democracy and Political Governance Initiative, and the Economic and Corporate Governance Initiatives. For a general overview of the content of these initiatives see paragraphs 71 - 98 of the NEPAD.

⁶⁰¹ See paragraph 95 of the NEPAD.

⁶⁰² See paragraph 112 of the NEPAD.

⁶⁰³ Other objectives related to energy pertain to specific forms of energy such as solar-, hydro- and petroleum-based energy. See paragraph 112 of the NEPAD.

⁶⁰⁴ These initiatives and other matters related to the formulation of coordinated regional energy law and policy at the AU level will be elaborated upon in paragraph 5.5 here-under.

The promotion of sustainable development by means of the achievement of the MDGs is an objective which is evident from the provisions of the regional legal instruments comprising the legal framework regulating activities related to increasing access to modern energy. The proposed right to energy should therefore be seen to refer to a right to access to modern energy sources which promote sustainable development – in other words, access to sustainable energy. The question which now arises relates to the topic of whether modern energy and sustainable energy should be seen as mutually inclusive concepts. It is submitted that while a causal link between the two concepts indeed exists, they should not be regarded as mutually inclusive. With regard to the question relating to the nature of the relationship between the concepts of modern energy and sustainable energy, it is the hypothesis of the author that an energy source needs to be labelled as a modern energy source in order to be considered a sustainable energy source, but not the other way around. In other words, all sustainable energy sources are modern energy sources but not all modern energy sources should be considered sustainable energy sources. While this hypothesis brings us closer to a definition of the concept of sustainable energy, it is still necessary to provide a brief discussion of what should be construed a viable definition of the concept.

5.3 AU normative and organisational regional integration structure

The Organisation of African Unity (OAU) was established on 25 May 1963 in Addis Ababa, on signing of the OAU Charter by the representatives of 32 governments. A further 21 states have joined gradually over the years, with South Africa becoming the 53rd member on 23 May 1994.⁶⁰⁵ The entry into force of the Abuja Treaty, which established the AEC in 1994, saw the OAU operating on the basis of these two legal instruments. An Extraordinary Summit of the OAU held in Sirte, Libya on 9 September 1999 called for the establishment of an AU in conformity with the ultimate

⁶⁰⁵ The objectives of the OAU include to promote the unity and solidarity of African States; to co-ordinate and intensify their co-operation and efforts to achieve a better life for the peoples of Africa; to defend their sovereignty, territorial integrity and independence; to eradicate all forms of colonialism from Africa; to promote international co-operation, giving due regard to the UN Charter and the Universal Declaration of Human Rights; and to co-ordinate and harmonise members' political, diplomatic, economic, educational, cultural, health, welfare, scientific, technical and defence policies. See Article II(1)(a) – (e) of the OAU Charter.

objectives of the OAU Charter and the provisions of the Abuja Treaty. Following this, the Constitutive Act was adopted during the Lomé Summit of the OAU on 11 July 2000.⁶⁰⁶

With the adoption of the Constitutive Act, the AU began to develop a normative framework for nurturing and deepening democratic governance in the continent. Today the AU has a well-articulated structural and normative framework that provides a solid foundation for its continental governance architecture.⁶⁰⁷ The Constitutive Act outlines the organisational structure of the AU as including: the Assembly; the Executive Council; the Pan-African Parliament; the Court of Justice; the Commission; the Permanent Representatives Committee; the Specialized Technical Committees; the Economic, Social and Cultural Council; and the Financial Institutions⁶⁰⁸ The normative developments under the auspices of the organs of the AU include, most notably the *NEPAD Declaration on Democracy, Political, Economic and Corporate Governance*, 2002; the African Peer Review Mechanism, 2003 (APRM); and the African Charter on Democracy, Elections and Governance, 2007. The APRM⁶⁰⁹ in particular has gained considerable prominence as the AU normative framework.⁶¹⁰ Through the APRM the AU has established a system for the assessment of the quality of governance in the participating countries and for the development of programmes of action to address identified shortcomings. In short, the mandate of the APRM is to evaluate compliance by states with NEPAD principles, including human rights. The APRM is a voluntary, 'soft' mechanism of

⁶⁰⁶ For a general overview of the development of the AU see www.au.org [date of use 17 March 2013].

⁶⁰⁷ Kindiki K "The normative and institutional framework of the AU relating to the protection of human rights and the maintenance of international peace and security: A critical appraisal" 2003 *African Human Rights Journal* 3 98.

⁶⁰⁸ See article 5(1)(a) – (i) of the Constitutive Act.

⁶⁰⁹ As of 2011 the APRM counted 30 member states: Algeria, Angola, Benin, Burkina Faso, Cameroon, Congo, Djibouti, Egypt, Ethiopia, Gabon, Ghana, Kenya, Lesotho, Liberia, Malawi, Mali, Mauritania, Mauritius, Mozambique, Nigeria, Rwanda, Sao Tome & Principe, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda and Zambia. Between January 2006 and January 2011 14 member countries were peer reviewed, namely: Ghana, Rwanda, Kenya, South Africa, Algeria, Benin, Uganda, Nigeria, Burkina Faso, Mali, Mozambique, Lesotho, Mauritania and Ethiopia.

⁶¹⁰ The proposal for the establishment of the APRM was made by the Heads of State and Government Implementation Committee in October 2001, and was endorsed by the AU in its Durban Summit in July 2002. See the AU "Declaration on the Implementation of NEPAD" 1st ordinary session of the Assembly of Heads of State and Government of the AU, 9-10 July 2002, Durban, South Africa. See Kindiki 2003 *African Human Rights Journal* 104.

supervision which combines self-assessment with regional monitoring. It takes a holistic approach to governance with a mandate covering democracy and political governance, economic governance, corporate governance and socio-economic development. In order to promote both domestic and external accountability in governance, continental oversight structures of APRM have been created which include the Economic, Social and Cultural Council (ECOSOCC), the ACHPR, and the Pan-African Parliament (PAP).⁶¹¹

The provisions of the Constitutive Act as well as of the Abuja Treaty affirm the objective of regional integration by means of intense regional cooperation. Both provide that cooperation must take place among member states as well as RECs. The Abuja Treaty envisages the creation of the AEC over a period of thirty-four years using six defined stages of evolution. Rather than start from scratch, the AEC uses existing RECs⁶¹² as the building blocks of the AEC.⁶¹³ In this regard, the provisions of the RECs Protocol, are relevant. The RECs Protocol recognises the need to establish an institutional framework that will govern relations between the AEC and the RECs; the harmonisation and coordination of policies, measures, programmes

⁶¹¹ UNECA 2011 74.

⁶¹² In 2006, the Assembly of Heads of State and Government of the AU suspended, until further notice, the recognition of new RECs with the exception of the following eight: ECOWAS; Common Market for Eastern and Southern Africa (COMESA); EAC; Economic Community of Central African States (ECCAS); SADC; Inter-Governmental Authority for Development (IGAD); Arab Maghreb Union (AMU) and; Economic Community of Sahelo-Saharan States (CENSAD). See AU *Decision on the Moratorium on the Recognition of Regional Economic Communities*, Assembly/AU/ Dec.112 (VII), 2006. [RECs Moratorium Decision].

⁶¹³ In the words of article 88(1) of the Abuja Treaty, the AEC "shall be established mainly through the co-ordination, harmonization and progressive integration of the activities of [RECs]". Article 3 of the Constitutive Act also underscores the need to "coordinate and harmonize the policies between existing and future Regional Economic Communities for the gradual attainment of the objectives of the [African] Union". Indeed, this is described as an "objective" of the Union. It is worth noting that under article 88(2) of the Abuja Treaty, it was the AEC (not the OAU - now the AU) that was entrusted with the co-ordination, harmonisation and evaluation of the activities of existing and future regional economic communities. See Oppong RF "The African Union, AEC and Africa's Regional Economic Communities: Untangling a Complex Web" 2009 *African Journal of International and Comparative Law* 2; Olowu D "Regional Integration, Development, and the African Union Agenda: Challenges, Gaps and Opportunities" 2003 13 *Iowa Journal of Transnational and Contemporary Problems* 216; Scholtz W and Ferreira G "Much Ado About Nothing? The SADC Tribunal's Quest for the Rule of Law Pursuant to Regional Integration" 2011 *Zeitschrift für ausländisches öffentliches Recht und Völkerrecht/Heidelberg International Law Journal* 331; Ajomo MA "Regional Economic Organisations: The African Experience" 1976 *International and Comparative Law Quarterly* 3; Allott AN "Towards the Unification of Laws in Africa" 1965 *International and Comparative Law Quarterly* 366; and Allott AN "The Unification of Laws in Africa" 1968 *American Journal of Comparative Law* 53.

and activities of the latter; the implementation of the provisions of paragraph 2 (a) through (d) of Article 6 of the Abuja Treaty; and cooperation among the regional economic communities.⁶¹⁴ The role of the RECs in achieving the said objectives is clear – RECs must harmonise and coordinate their policies, measures, programmes and activities and in so doing avoid the duplication of efforts, which would hamper the achievement of the objectives of the AEC,⁶¹⁵ one of which is the promotion of sustainable development.⁶¹⁶ In essence the RECs Protocol places the cooperation among RECs with regard to harmonising their policies, measures, programmes and activities central to the achievement of the promotion of sustainable development.

5.4 Regional integration in Africa

It is apparent that regional integration manifested in formulating coordinated regional policies is viewed as an important mechanism for promoting the sustainable development of Africa. While this statement is not opposed by the author, the state of current regional integration efforts and the future thereof is a relevant topic. Regionalism and specifically regional integration became a pillar of Africa's development strategy at the outset of the decolonisation process in the 1960s with the establishment of sub-regional economic communities enjoying much attention. While the establishment of RECs indeed took place, the achievement of integration at the continental level has for the most part failed, mainly due to less than successful domestic economic development.⁶¹⁷ Regionalism and regional integration are related concepts and are often used inter-changeably but upon scrutinising their definitions they can be perceived to differ. The concept of regionalism is defined as a process consisting of a group of countries that implement a set of preferential policies designed to enhance the exchange of goods and/or factors of production among themselves.⁶¹⁸ Regional integration on the other hand refers to the process through which the members of a group of nation states

⁶¹⁴ Preamble to the RECs Protocol.

⁶¹⁵ Article 4(a) of the RECs Protocol.

⁶¹⁶ Article 4(1)(a) of the Abuja Treaty.

⁶¹⁷ Qobo M "The challenges of regional integration in Africa in the context of globalisation and the prospects for a United States of Africa" 2007 *Institute for Security Studies* 3.

⁶¹⁸ Wyatt-Walter "Regionalism" 78.

voluntarily, in various degrees, share one another's markets and establish mechanisms and techniques that minimise conflicts and maximise the internal and external economic, political, social and cultural benefits of their interaction.⁶¹⁹ In much the same vein, Asante defines regional integration as a process whereby two or more countries in a particular area join together to pursue common policies and objectives in matters of general economic development or in particular economic fields of common interest, to the mutual advantage of all the participating states.⁶²⁰

With specific reference to regionalism, it is widely held that regionalism at the African level will remain an ideal rather than a practical reality as long as sound and functional development policies at the domestic level are lacking. This challenge is exacerbated by the unwillingness of member states to cede or share sovereignty at the regional level by agreeing to a supra-national body such as the AU.⁶²¹ There are three main approaches to regional integration, namely: market integration,⁶²² development integration⁶²³ and regional cooperation.⁶²⁴ The cooperative efforts envisaged by the regional cooperation approach to regional integration may take a variety of forms, one of which is continuous cooperation on matters of common concern culminating in policy harmonisation.⁶²⁵

⁶¹⁹ Harloov *Regional Cooperation* 15

⁶²⁰ Asant *Regionalism* 20.

⁶²¹ Nye *Power in the global information age* 326.

⁶²² Market integration encompasses measures designed to abolish discrimination between economic units belonging to different national states and consists of a linear progression of stages of integration which include free trade areas, custom unions, common markets, economic unions and total economic integration. The market approach to regionalism is also the approach favoured at the African regional level. See Balassa *The Theory of Economic Integration* 1; and Mukamunana R and Moeti K "Challenges of Regional Integration in Africa: Policy and Administrative Implications" 2005 *Journal of Public Administration* 95.

⁶²³ Due to experiencing problems in implementing market integration (which was intended for developed or developing countries) in under-developed countries, the development integration theory emerged. Development integration seeks to address problems in three areas, namely: the objective of integration; the timing and level of interstate binding commitments; and the distribution of the costs and benefits of cooperation. The objective of development integration is to accelerate the social and economic development of member countries. See Harloov *Regional Cooperation* 30 – 36.

⁶²⁴ Regional cooperation is the process whereby neighbouring countries with common interests cooperate to solve tasks and create improved conditions in order to maximise the economic, political, social and cultural benefits for each participating country. See Lee *The Political Economy of Regionalism* 22; and Mukamunana and Moeti 2005 *Journal of Public Administration* 94.

⁶²⁵ Mukamunana and Moeti 2005 *Journal of Public Administration* 95.

In practice, Africa's attempts at regional integration have failed to a large extent. Few of the commitments and objectives related to faster economic growth and development by means of regional integration have been achieved.⁶²⁶ The failure of regional integration schemes is mainly attributed to the adoption of the European model of the market integration approach, which was modelled on the economic conditions of developed economies.⁶²⁷ In addition to claims that Africa has pursued the wrong approach to regional integration, the suggestion is that other factors have also contributed to the disappointing results of African regional schemes. The major impediments include a lack of political commitment to regional integration, political instability, weak infrastructures, and problems with the distribution of the costs and benefits of integration.⁶²⁸

Two issues which further exacerbate the challenges surrounding the effective implementation of regional integration in Africa are the dubious relationship between the AU, the AEC and the RECs on the one hand, and multiple memberships of the RECs on the other. Let us first consider the relationship between the AEC and the RECs against the backdrop of multiple memberships of the RECs. The RECs are ultimately to merge or to be absorbed to form the AEC.⁶²⁹ Oppong views this as a unique and quite complicated approach to economic integration and remarks that only one seemingly successful "merger" of RECs to have taken place was the merger of the European Community with the European Free Trade Area to form the European Economic Area.⁶³⁰ While the Abuja Treaty therefore identifies the RECs as the building blocks of the AEC, they are not members of the AEC or parties to the

⁶²⁶ Specific commitments made by States in terms of their establishing treaties include developing infrastructure that promotes intra-regional trade; harmonising political and socio-economic policies and plans for member states; developing policies aimed at the progressive elimination of obstacles to free movement; and creating appropriate institutions and mechanisms for the mobilisation of requisite resources for the implementation of programmes and operations. See Asante *Regionalism*; Lee *The Political Economy of Regionalism*; and Mukamunana and Moeti 2005 *Journal of Public Administration* 95.

⁶²⁷ McCarthy "Regional Integration in Sub-Saharan Africa" 7; and Viner *The Customs Union Issue* 41.

⁶²⁸ Mukamunana and Moeti 2005 *Journal of Public Administration* 97 – 99.

⁶²⁹ Article 5(1)(d) of the RECs Protocol.

⁶³⁰ Riechenberg K "The Merger of Trading Blocks and the Creation of the European Economic Area: Legal and Judicial Issues" 1995 *Tulane Journal of International and Comparative Law* 4 63. In general, countries form economic communities which evolve from free trade areas or customs unions, and may culminate in complete economic integration. See in this regard Oppong "The AU, AEC and Regional Economic Communities" 66.

Abuja Treaty. These roles belong to individual member states that are often parties to more than one REC. These facts lead Oppong to question the extent to which the RECs are bound by decisions of the AEC. Furthermore, since the RECs, which have their own legal personality, are not parties to the Abuja Treaty, Oppong questions the existence of a legal basis for assuming that they will merge and form the AEC.⁶³¹ Neither the RECs Protocol nor the treaties establishing a number of RECs provide satisfactory answers to these questions, even though all of these REC treaties were drafted after the Abuja Treaty.⁶³² The merger of the RECs into the AEC becomes an ever more relevant matter, especially considering their progress in the stages of integration.⁶³³ In addition, the RECs are legal systems in their own right which, unlike the AEC, are expressly endowed with separate legal personality. Accordingly, even before merging the RECs into the AEC there is the need to structure and manage the relations between the AEC's and the RECs' legal systems as well as among the RECs. The RECs Protocol does not go far in addressing these complicated relational issues.

There is an urgent need for the AEC to actively rationalise relations among the RECs and between the RECs and itself.⁶³⁴ The 2006 AU moratorium on the establishment

⁶³¹ Oppong "The AU, AEC and Regional Economic Communities" 66.

⁶³² The *Treaty establishing the Common Market for Eastern and Southern Africa*, 5 November 1993, 33 *International Legal Materials* 1067 (COMESA Treaty) envisages the conversion of COMESA into an organic entity of the AEC. See article 178(1)(c) of the COMESA Treaty. In the same vein, neither the *Revised Treaty establishing the Economic Community of West African States*, 1997, (ECOWAS Treaty) nor the *Treaty for the establishment of the East African Community*, 1999 (EAC Treaty) refer to their status after the formation of the AEC. Article 2(1) of the ECOWAS Treaty provides that the member states have decided that ECOWAS shall ultimately be the sole economic community in the region for the purpose of economic integration and the realisation of the objectives of the AEC. The EAC Treaty states in its preamble that the member states affirm their desire for a wider unity of Africa and regard the EAC as a step towards the achievement of the objectives of the Abuja Treaty.

⁶³³ In Oppong's view the AEC should focus on negotiating a merger protocol given the complexity and size of the undertaking. It should address issues relating to: the post-merger legal status of the RECs; their assets and liabilities after the merger; whether the merger is compulsory or voluntary and, if compulsory, how that is going to be enforced. Other issues to be included in the proposed merger protocol are when the merger is to occur (simultaneously for all the RECs or incrementally after each reaches the required stage of integration); the status of their personnel; and the status of active RECs, such as the Southern African Customs Union, which have not been recognized as building blocks of the AEC. See Oppong 2009 *African Journal of International and Comparative Law* 3 – 4.

⁶³⁴ UNECA *Assessing Regional Integration in Africa II: Rationalizing Regional Economic Communities* (UNECA, 2004).

and recognition of more RECs was an important first step.⁶³⁵ Oppong further suggests that the AEC should adopt a protocol founded on a "one country-one community membership" of the eight AU recognised RECs. With the help of national institutions and commissioned experts, countries should be guided to decide, on the basis of predominately economic criteria, which RECs best suit their needs, taking into account the fact that the ultimate realisation of the vision of an AEC may help address some of their needs.⁶³⁶

The nature of the relationship between the AU and the AEC poses another challenge to regional integration in Africa – a challenge which is based on the confusion of two distinctly different objectives, namely economic integration and political unification.⁶³⁷ Oppong notes that economic integration is possible without political unification and is of the opinion that African economic integration has failed, largely due to the non-realisation of this truth.⁶³⁸ The confusion of economic integration and political unification as distinct objectives of the Abuja Treaty and the (then) OAU Charter is evident, considering the lack of reference by one to the other. Articles 98(1) and 99 of the Abuja Treaty respectively state that the Community shall form an integral part of the OAU (AU) and protocols adopted in terms of it shall form an integral part of the OAU Charter. The immediate effect of these provisions was that the institutions or organs of the OAU were co-opted to perform the functions of the institutions established by the Abuja Treaty without consideration as to whether the OAU institutions suited the needs of economic integration.⁶³⁹ The Constitutive Act did not address this problem, simply providing in its Preamble that the Act shall take precedence over and supersede any inconsistent or contrary provisions of the Abuja Treaty.

⁶³⁵ See note 618 above.

⁶³⁶ Oppong sees the legal foundation for such a protocol in article 5(1) of the Abuja Treaty. In it, member states undertake to "create favourable conditions for the development of the Community and the attainment of its objectives, particularly by harmonising their strategies and policies", and to "refrain from any unilateral action that may hinder the attainment of the said objectives". I argue that the unilateral decisions of AEC member states to become members of multiple RECs create unfavourable conditions for the development of the AEC. See Oppong 2009 *African Journal of International and Comparative Law* 5.

⁶³⁷ The provisions of the Abuja Treaty related to the objectives of the AEC pertain moreover to economic integration, while the OAU Charter and later the Constitutive Act of the AU relate to political unification.

⁶³⁸ Oppong 2009 *African Journal of International and Comparative Law* 6 see note 30.

⁶³⁹ Oppong 2009 *African Journal of International and Comparative Law* 7.

Recently there have been arguments in favour of implementing an approach to African regional integration oriented towards producing developmental outcomes – in other words, efforts should be geared towards developmental regionalism as opposed to the traditional integration-focused regionalism.⁶⁴⁰ The aim of developmental regionalism should be to contribute to the collective betterment, encourage the development of new industries, help diversify national economies and increase Africa's trade with developed economies.⁶⁴¹ This form of regionalism should find its normative basis in values such as democracy, respect for the rule of law, and respect for human rights.⁶⁴²

The challenges to regional integration as highlighted by Oppong are relevant and point towards an almost haphazard approach to the topic of African regional integration. These challenges notwithstanding, the coordination and harmonisation of policies in areas of common interest and advancing the development of the continent are intrinsically linked AU objectives.⁶⁴³ Energy is described as one of the areas of common interest among member states which should enjoy the focus of the Executive Council of the AU in establishing a coordinated policy.⁶⁴⁴ NEPAD furthermore establishes that increased access to modern energy as a factor contributing to the sustainable development of the region should be addressed in coordinated AU regional law and policy.⁶⁴⁵ The aforementioned not only underline the link between regional cooperation and the promotion of sustainable development but also lay down the mandate for the establishment of coordinated regional and/or sub-regional initiatives geared towards improving access to modern energy. The subsequent section will contain a discussion of existing regional and/or sub-regional initiatives related to improving access to modern energy in Africa. It should be noted from the outset that improved access to modern energy should be considered both

⁶⁴⁰ Asante *Regionalism* 65.

⁶⁴¹ Asante *Regionalism* 70.

⁶⁴² Qobo 2007 *Institute for Security Studies* 13.

⁶⁴³ Article 3(k) of the Constitutive Act.

⁶⁴⁴ Article 13(1)(b) of the Constitutive Act.

⁶⁴⁵ See paragraph 2.5 above.

an objective common to all the initiatives to be discussed and a means in itself to achieve the overriding objective of sustainable development.

5.5 Regional strategies for increased access to modern energy in Africa

In Africa, adopting a regional approach to increased access to modern energy appears optimal if not essential. The continent is divided into a large number of small countries, including a large number of LDCs with small populations. This leads to challenges such as national energy markets being small and fragmented and the regulation of issues related to energy access via national policies not enjoying the necessary attention. With regards to the objective of scaling up regional access to modern energy via coordinated regional strategies, the activities of the EAC,⁶⁴⁶ ECOWAS⁶⁴⁷ and the SADC⁶⁴⁸ are highly relevant. The EAC and ECOWAS have recently moved towards developing and implementing regional strategies to increase access to modern energy services under the auspices of the UNDP's Energy Poverty Regional Programme (REPP). In much the same fashion, the SADC has very recently established its own regional strategy and action plan on the topic of increased access to modern energy services.

⁶⁴⁶ The East African Community (EAC) is the regional intergovernmental organisation of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Rwanda and Republic of Burundi. The Treaty for the Establishment of the East African Community was signed on 30 November 1999 and entered into force on 7 July 2000 following its ratification by the original three Partner States – Kenya, Uganda and Tanzania. The Republic of Rwanda and the Republic of Burundi acceded to the EAC Treaty on 18 June 2007 and became full Members of the Community with effect from 1 July 2007. See www.eac.int. [date of use 20 May 2013].

⁶⁴⁷ The ECOWAS comprises a group of fifteen West African states, including Republic of Benin, Burkina Faso, Republic of Cape Verde, Republic of Cote D'Ivoire, Republic of Gambia, Republic of Ghana, Republic of Guinea, Republic of Guinea Bissau, Republic of Liberia, Republic of Mali, Republic of Mauritania, Republic of Niger, Federal Republic of Nigeria, Republic of Senegal, Republic of Sierra Leone, and Republic of Togo. The ECOWAS was established in 1975 in terms of the provisions of the Treaty establishing the Economic Commission of West African States. See www.ecowas.int. [date of use 20 May 2013].

⁶⁴⁸ The SADC is a regional organisation consisting of fifteen southern African member states and was established in 1992 in terms of the Treaty Establishing the SADC. The fifteen member states comprising the SADC include Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. See www.sadc.int. [date of use 20 May 2013].

5.5.1 EAC Development and Energy Access Strategies

In terms of the provisions of the EAC Treaty the objectives common to the member states relate to the development of policies and programmes aimed at widening and deepening cooperation among the member states in political, economic, social and cultural fields.⁶⁴⁹ The policies and programmes resulting from the cooperation envisaged by the EAC Treaty should lead to the achievement of the ultimate objectives of promoting the sustainable and economic development of the EAC.⁶⁵⁰

An example of the coordinated policies and programmes mandated by the provisions of the EAC Treaty is the Third EAC Development Strategy (2006 – 2010).⁶⁵¹ The Development Strategy acknowledges the over-arching objective of sustainable and economic development as contained in the EAC Treaty and identifies various challenges hampering progress in achieving this objective. The challenges common to member states include globalisation, the high levels of poverty, the low levels of access to energy, and the rising price of oil.⁶⁵² The Development Strategy proposes that these challenges be addressed by means of policies and programmes aimed at boosting economic growth and reducing poverty. Taken in the context of the objectives of both the EAC Treaty and the Development Strategy, increasing access to energy by means of coordinated policies and programmes geared towards economic development and poverty reduction is critical to achieving the objective of sustainable development in the EAC. Addressing the challenge of low levels of access to energy necessitates regional action in the form of formulating policies and programmes relating to scaling up energy services. The perception of this need led to the drafting of the EAC Regional Strategy on Scaling up Access to Modern Energy Services, which was adopted in 2006 (EAC Energy Strategy).⁶⁵³ The EAC Energy

⁶⁴⁹ Article 5(1) of the EAC Treaty.

⁶⁵⁰ Such policies should include raising the standard of living, improving the quality of life of the member states' populations, the sustainable utilisation of natural resources, integrating gender equality into existing legal instruments, and the promotion of peace, security, and stability. See Article 5(3)(a)-(d) of the EAC Treaty.

⁶⁵¹ Hereinafter referred to as the Development Strategy.

⁶⁵² UNEA 2007 70.

⁶⁵³ The partner States (Kenya, Uganda, Tanzania, Rwanda and Burundi) developed the Energy Strategy to fight poverty, improve living conditions and achieve the MDGs. This strategy was adopted in November 2006 by the EAC Council of Ministers.

Strategy, which is a legally non-binding instrument, states as its general objective the achievement of the MDGs by 2015 by means of enabling "at least half the population to have access to modern energy services by the year 2015."⁶⁵⁴ The EAC Energy Strategy uses two significant concepts when addressing the topic of access to energy services to achieve the MDGs, namely energy poverty and energy services. In terms of the EAC Energy Strategy, energy poverty should be seen to refer to the lack of sufficient choice that would give access to adequate, affordable, effective and environmentally sustainable energy services that could support economic and human development.⁶⁵⁵ Energy services on the other hand refer to the end-use applications of an energy delivery system that meets tangible and/or intangible life and livelihoods needs and the needs of social services.⁶⁵⁶

The EAC Energy Strategy sets out four strategic targets which refer or relate to some form of access to modern energy services. In this regard, the Strategy proposes to scale up access to modern energy services in the EAC by means of halving the percentage of people reliant on biomass for their primary energy needs; establishing and/or increasing access to reliable electricity for all urban and peri-urban poor; granting access to modern energy services for social services; and granting access to mechanical power for productive uses. In order to achieve the targets set out by the EAC Energy Strategy member states must strive towards mainstreaming energy into MDG-based National Development Strategies or Poverty Reduction Strategies, develop pro-poor energy policies and regulatory frameworks to attract required investments, and build national capacity to deliver modern energy services to the poor.

5.5.2 The Economic Community of West African States Regional Energy Access Policy, 2006

⁶⁵⁴ This translates into enabling more than nine million households, which equate to about forty-eight million people, to access modern energy. See EAC Regional Strategy 2009 4.

⁶⁵⁵ EAC Regional Strategy 2009 14.

⁶⁵⁶ EAC Regional Strategy 2009 24.

In response to the challenge posed by sectoral policies that have failed to reduce poverty and increase access to modern energy services in rural and peri-rural areas, ECOWAS member states and regional institutions launched the Regional Energy Access Policy, which is embodied by the *White Paper for a Regional Policy*⁶⁵⁷ adopted in 2006 (ECOWAS White Paper). The ECOWAS White Paper is a legally non-binding memorandum of understanding (MOU) between ECOWAS and the UNDP stating the common objective of increasing access to modern energy services. As its over-arching objective, the Regional Energy Access Policy aims to ensure that at least half of the ECOWAS population living in rural and peri-urban areas has access to modern energy services by 2015⁶⁵⁸ – a time-frame which is in line with the achievement of the MDGs. In order to achieve this objective, the ECOWAS White Paper fixes three targets to be achieved by 2015, namely that one hundred per cent of the total population should have access to improved domestic energy services; sixty-six per cent of the population should have access to an individual electricity supply; and sixty per cent of the population living in rural areas should have access to mechanical power for productive uses.⁶⁵⁹ Other objectives of the policy include strengthening regional integration with a view to fostering development, harmonising political and institutional frameworks, and developing coherent energy policies based on reducing poverty and achieving the MDGs.

5.5.3 Regional integration of energy activities aimed at the development of the SADC region.

In terms of the provisions contained in the SADC Treaty, the objective common to all the SADC member states is to promote sustainable and equitable economic growth and socio-economic development. This objective will be achieved through efficient productive systems, deeper co-operation and integration, good governance, and durable peace and security, so that the region emerges as a competitive and

⁶⁵⁷ White Paper for a Regional Policy Geared towards increasing access to energy services for rural and peri-urban populations in order to achieve the Millennium Development Goals 2006 (A/DEC.24/01/06).

⁶⁵⁸ In order to reach this objective, a staggering thirty-six million households will have to be provided with access to energy by 2015.

⁶⁵⁹ Paragraph 3 of the ECOWAS White Paper.

effective player in international relations and the world economy.⁶⁶⁰ While the text of the SADC Treaty does not refer expressly to the concept of sustainable development *per se*, various provisions contain explicit reference to development and the need that the envisaged development be considered sustainable. To this extent, the first objective as stated by the SADC Treaty refers to the promotion of the "sustainable and equitable growth and socio-economic development" of the region.⁶⁶¹ The provision goes further to link the achievement of the development to the eradication of poverty (MDG One), which in itself is listed as an independent objective of the community in a subsequent provision.⁶⁶² Furthermore, reference to the principles of sustainable development, however implicit, can be found in the use of the term "equitable" in reference to the type of development envisaged by the Treaty,⁶⁶³ coupled with poverty eradication,⁶⁶⁴ as well as the reference to "sustainable utilisation of natural resources".⁶⁶⁵ Moreover, keeping in mind the usual three-pillar construction of the concept of sustainable development, the objective of development as mandated by the SADC Treaty includes reference to the social, economic and environmental components of development. It is therefore the submission of the author that while the SADC Treaty does not contain any express reference to the concept of sustainable development, its objectives in their totality comprise the mandate for sustainable development.

The *Regional Indicative Strategic Development Plan, 2003* (RISDP) constitutes the framework for SADC regional integration that provides SADC member states with a consistent and comprehensive programme of long-term economic and social policies. The RISDP is a plan and not a legally binding legal instrument, which means that it elicits political commitment from states but does not impose legal obligations. Nonetheless, the RISDP embodies the common SADC position on the

⁶⁶⁰ For a general overview of these and other related objectives see Article 5 of the Treaty Establishing the SADC 1992.

⁶⁶¹ Article 5(1)(a) of the SADC Treaty.

⁶⁶² Article 5(1)(j) of the SADC Treaty.

⁶⁶³ See note 117 above.

⁶⁶⁴ This provision relates to the New Delhi principle of equity and poverty eradication. For an overview of this principle, see paragraph 3.5.1 above.

⁶⁶⁵ Article 5(1)(g) of the SADC Treaty. This provision relates to the New Delhi principle of the duty resting on States to ensure the sustainable use of natural resources. For an overview of this principle, see paragraphs 3.5.1 and 3.5.2 above.

strategic steps necessary to promote sustainable development at the SADC level. The RISDP emphasises that good political, economic and corporate governance are prerequisites for sustainable socio-economic development, and that the SADC's quest for poverty eradication and deeper integration levels will not be realised in the absence of good governance.⁶⁶⁶ The RISDP acknowledges the role that regional cooperation in establishing coherent policies pertaining to various areas of cooperation – of which energy is one - will play in facilitating the achievement of the over-all objective of promoting the sustainable development of the member states.⁶⁶⁷

Having established sustainable development as an objective of the SADC, the manner in which this objective will be achieved is next dealt with. The SADC Treaty provides that regional integration will be indispensable in ensuring the promotion of the sustainable development of the region⁶⁶⁸ and goes on to list the ways in which regional integration should be brought about in the SADC. The effecting mechanisms listed relate primarily to cooperation among member states on harmonising policies aimed at regulating projects and programmes pertaining to a variety of areas of cooperation listed in the Treaty.⁶⁶⁹ The cooperation envisaged by the Treaty is defined as the coordination, rationalisation and harmonisation of member states' overall macro-economic and sectoral policies and strategies; and programmes and projects by appropriate SADC institutions in the areas of cooperation listed.⁶⁷⁰ Among the areas of cooperation listed in the SADC Treaty is the area of infrastructure and services, which falls under the Directorate of Infrastructure and Services (DIS).⁶⁷¹ The DIS is further mandated by the SADC Treaty to conclude necessary Protocols in the area of infrastructure and services, which includes energy, which spell out the objectives and scope of and institutional mechanisms for cooperation and integration in the field covered by the Protocol.⁶⁷²

⁶⁶⁶ See paragraph 1.5 of the RISDP.

⁶⁶⁷ See paragraph 3 of the RISDP.

⁶⁶⁸ See note 117 above.

⁶⁶⁹ For an overview of the effecting mechanisms prescribed, see article 5(2)(a) – (j) of the SADC Treaty.

⁶⁷⁰ Article 21(2) of the SADC Treaty.

⁶⁷¹ Article 21(3)(d) of the SADC Treaty.

⁶⁷² For an overview of the general provisions relating to the Protocols to be concluded, see article 22(1) – (11) of the SADC Treaty.

With reference to the field of energy, the *SADC Protocol on Energy*, 1996 (SADC Energy Protocol) fulfils this role.

The objective of the SADC Energy Protocol can be summarised as the harmonisation of national and regional energy policies on matters of common interest in order to provide sustainable energy services.⁶⁷³ Focusing on the role of regional integration as a mechanism for effecting sustainable development, the provisions of the SADC Energy Protocol specifically refer to the importance of a coordinated approach to energy strategy formulation and planning in SADC. A coordinated regional approach will depend heavily upon the harmonious development of national energy policies and matters of common interest in order to facilitate the balanced and equitable development of energy in the SADC. The activity of fostering greater regional integration by means of a coordinated SADC energy policy must serve to ensure the progress and well-being of the people of the SADC through the promotion of economic and social development.⁶⁷⁴ Closely related to the topic of promoting the SADCs development are the principles listed in the SADC Energy Protocol, which direct the activities of member states in pursuing its objectives.⁶⁷⁵

With reference to the role of a coordinated SADC energy policy in facilitating sustainable development, the text of the SADC Energy Protocol, in much the same fashion as the SADC Treaty, does not contain specific reference to the concept of sustainable development. In the opinion of the author it is, however, possible to deduce that the promotion of sustainable development is an objective of the SADC Energy Protocol by interpreting certain provisions. The SADC Energy Protocol states as general principles that member states will use environmentally sound energy to support economic growth and development, will alleviate poverty, and will improve the standard and quality of life in the SADC.⁶⁷⁶ These principles clearly refer to the environmental, social and economic indicators of sustainable

⁶⁷³ Article 3(1) and (4) of the SADC Energy Protocol.

⁶⁷⁴ Preamble to the SADC Energy Protocol.

⁶⁷⁵ Article 2 of the SADC Energy Protocol.

⁶⁷⁶ Article 2(1) and 2(8) of the Energy Protocol.

development as well as to the correlation between the promotion of development and the alleviation of poverty. In short, the SADC Energy Protocol reiterates the *nexus* between the objectives of regional integration and the promotion of sustainable development and places this relationship in the context of energy use and development in the SADC.

In order to facilitate the achievement of the promotion of sustainable development by means of regional integration based on and reflected by coordinated regional energy policies, strategies and programmes, the Energy Protocol is operationalised by the *SADC Energy Cooperation Strategy and Policy*, 1996 and the *Energy Sector Activity Plan*, 1999 (Activity Plan) both of which set out the activities and time-frame⁶⁷⁷ related to proposed regional energy activities.⁶⁷⁸ Activities regulated by the Activity Plan are grouped under four focus areas, namely energy trading, investment and finance, training and organisational capacity building, and the exchange of information and experience.⁶⁷⁹ The Activity Plan and its related activities ultimately revolve around the objective of increasing levels of access to modern energy sources in the region. This objective proved to be the impetus for drafting the *SADC Regional Energy Access Strategy and Action Plan* in 2010 (SADC Energy Access Strategy) – an initiative geared towards increased regional access to modern energy.

4.6.3 SADC Regional Energy Access Strategy and Action Plan

The SADC Energy Access Strategy encompasses a strategic as well as an operational goal. The strategic goal relates to harnessing regional energy resources to ensure that all people of the SADC region have access to adequate, reliable, least cost, environmentally sustainable energy sources. The operational goal on the other

⁶⁷⁷ The Activity Plan was finalised in 2000 and the time-frame allocated to most activities was between three and five years.

⁶⁷⁸ The Activity Plan finds its origins in the common desire to position the energy sector in such a way that the region derives maximum benefits from the rationalisation of resources and facilities in the region, and to develop initiatives that contribute to building the capacity of energy institutions.

⁶⁷⁹ *Review of the SADC Energy Sector Activity Plan* Technical Report submitted by AECOM International Development Gaborone, Botswana December 2009 1.

hand relates to halving the proportion of people without access to energy within ten years and halving it again in successive five-year periods, eventually achieving universal access.⁶⁸⁰

The strategic framework for achieving the goals set by its provisions as contained in the SADC Energy Access Strategy revolve around seven key elements which include improved information and data exchange regarding energy access; a focus on energy end-uses rather than technologies; recognising the dominant role of biomass in the SADC's current and future energy developments; pricing; subsidies; acknowledging the link between energy use and development; and energy infrastructure capacity building.⁶⁸¹ Of specific relevance is the fact that the SADC Energy Access Strategy expressly acknowledges the interrelated nature of the relationship between policy and programmes pertaining to increased energy and achieving the main objective of promoting regional development. Stated differently, making convenient, high-quality sources of energy available to most of the SADC member states is part of the over-arching challenge of prevailing over wide-spread under-development and poverty in the region.⁶⁸² One such source of high-quality and convenient energy included in the list of energy sources, access to which should be increased throughout Africa, is nuclear energy. The EAC Strategy⁶⁸³ and the ECOWAS White Paper⁶⁸⁴ include nuclear energy as part of a diversified African energy mix geared towards the promotion of the sustainable development of the African continent. Their respective provisions furthermore acknowledge the intrinsically important role of a harmonised regional nuclear energy legal framework in facilitating the said development.

5.6 AU mandate for the inclusion of nuclear energy in a diversified African energy mix

⁶⁸⁰ Paragraph 1.1 of the SADC Energy Access Strategy.

⁶⁸¹ See paragraph 1.4 of the SADC Energy Access Strategy.

⁶⁸² See paragraph 7 of the SADC Energy Access Strategy.

⁶⁸³ *Regional Strategy on Scaling up Access to Modern Energy Services* EAC Project Document for Initial Implementation Activities 2009 5.

⁶⁸⁴ ECOWAS White Paper 10.

5.6.1 *The Abuja Treaty*

The AEC, as an organ of the AU, directs its attention towards economic, social and cultural development based on cooperation among future and existing economic communities.⁶⁸⁵ In terms of the provisions of the Abuja Treaty, development hinges upon the conclusion of agreements aimed at harmonising and coordinating policies among existing and future sub-regional and regional economic communities⁶⁸⁶ particularly in the fields of agriculture, industry, transport and communication, energy, natural resources, trade, money and finance, human resources, education, culture, science and technology.⁶⁸⁷ Cognisant of the moratorium on the establishment and recognition of more RECs in Africa,⁶⁸⁸ the foregoing provision should be interpreted as applicable only to the eight recognised African RECs.

Referring specifically to the important role of energy in the development of the AU, all member states of the AEC propose to coordinate and harmonise their policies and programmes in the field of energy and natural resources.⁶⁸⁹ In so doing, each member state shall ensure the effective development of the continent's energy and natural resources,⁶⁹⁰ promote the development of new and renewable energy in the framework of the policy of the diversification of sources of energy,⁶⁹¹ harmonise national energy plans and articulate a common energy policy,⁶⁹² and collectively solve the problems of energy transmission, the shortage of skilled technicians, and the insufficiency of the financial resources available for the implementation of the energy projects of member states,⁶⁹³ among other problems. These activities also relate to cooperation in the field of nuclear energy,⁶⁹⁴ which must take place in accordance with the provisions of the *Protocol on Energy and Natural Resources*.⁶⁹⁵

⁶⁸⁵ Article 4(1)(a) – (d) of the Abuja Treaty.

⁶⁸⁶ Article 4(2)(b).

⁶⁸⁷ Article 4(2)(e).

⁶⁸⁸ See paragraph 5.2 above.

⁶⁸⁹ Article 54(1).

⁶⁹⁰ Article 54(2)(a).

⁶⁹¹ Article 54(2)(c).

⁶⁹² Article 54(2)(e).

⁶⁹³ Article 54(2)(f).

⁶⁹⁴ Article 55.

⁶⁹⁵ No such Protocol has been drafted to date.

5.6.2 *Convention of the African Energy Commission, 2001*

The CAFREC, which entered into force in 2006, established the African Energy Commission (AFREC) in terms of the mandate contained in the Abuja Treaty.⁶⁹⁶ The CAFREC recalls the need for accelerated socio-economic development in Africa, which includes sustainable development⁶⁹⁷ and the exploitation of energy resources.⁶⁹⁸ It furthermore provides that the development of the use of energy must promote and support the development of member states. The two aforementioned provisions read together provide that the exploitation of African energy resources should be undertaken in a manner so as to serve the purpose of sustainable development. The guiding principles of the CAFREC pertain primarily to promoting regional and sub-regional cooperation in developing and utilising sustainable and environmentally sound energy in order to promote the development of member states.⁶⁹⁹ The overall function of the AFREC relates to coordinating efforts among member states and RECs in moving towards increasingly harmonised and coordinated regional energy plans, policies and programmes.⁷⁰⁰ The text of the CAFREC does not contain express reference to nuclear energy as a source of energy to be developed by member states. It does, however, define energy as a "new and renewable or non-renewable resource of energy in the natural state or processed, harnessed by humankind."⁷⁰¹ In terms of its mandate, the AFREC must promote regional and sub-regional cooperation in the field of energy development with the aim of promoting the sustainable development of AU member states.

⁶⁹⁶ Article 54 (2)(f) provides for the establishment of an adequate mechanism of concerted action and co-ordination for the collective solution of the energy development problems within the community.

⁶⁹⁷ Development includes economic and social development, the eradication of poverty, combatting desertification and improving the standard and quality of life throughout the member states. Article 3(a) of the CAFREC.

⁶⁹⁸ The instruments listed by the CAFREC include: the Lagos Plan of Action, 1980, the Cairo Agenda for Action, 1995 and the Resolutions of the First Pan African Energy Ministers' Conferences adopted in Tunis in 1995, and the First and Second Regional Conference of African Ministers Responsible for the Development and Utilization of Mineral and Energy Resources held in Accra in 1995 and Durban in 1997. See the Preamble of the CAFREC.

⁶⁹⁹ The guiding principles of the AFREC are contained in article 3 of the CAFREC.

⁷⁰⁰ Article 4 of the CAFREC.

⁷⁰¹ Article 1(d) of the AFREC.

The mandates contained in the provisions of the sub-regional energy access initiatives, read with the mandates contained in the Abuja Treaty and the CAFREC,⁷⁰² establish to one extent or another the need for regional cooperation on the topic of formulating and establishing coordinated regional nuclear energy policies and programmes. At present the AU nuclear legal framework comprises of initiatives and AU legal instruments. These include but are not restricted to the *African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology, 1990* (AFRA), the *The Africa – European Union Energy Partnership of 2008* (AEEP)⁷⁰³ and the *African Nuclear-Weapon-Free Zone, 2009* (Pelindaba Treaty). These initiatives share the common agenda of increasing further regional integration and cooperation focused on the establishment and practical implementation of a coordinated regional nuclear energy legal framework regulating the expansion of nuclear energy in the AU.

5.7 The current AU nuclear legal framework

5.7.1 The African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology, 1990

The AFRA is an intergovernmental agreement by the IAEA and African member states to further strengthen and enlarge the contribution of nuclear science and technology to the socio-economic development of the African continent.⁷⁰⁴ The agreement, which entered into force in 1990, currently enjoys a membership of 39

⁷⁰² See paragraph 4.11 above.

⁷⁰³ The Energy Partnership was concluded in terms of the *African-European Union Strategic Partnership, 2008*. Hereinafter referred to as the AEUSP.

⁷⁰⁴ To this end, member states have identified five strategic goals, namely: enhancing the sustainable contribution of nuclear science and technology to meet their developmental needs and interests; entrenching the culture of mutual assistance and regional cooperation; deepening the culture of nuclear safety and security at regional and national levels; continuously interacting with and creating awareness amongst decision-makers, civil society, users and the general public; and instituting good governance and excellence in management of the activities in the region. See Edwerd M "Development of a Continent" 2009 *IAEA Bulletin* 53; and *AFRA Profile for the Regional Strategic Cooperative Framework* (2008 – 2013) 2.

African countries.⁷⁰⁵ The provisions of the AFRA's principal planning tool, the Regional Strategic Cooperative Framework (RCF),⁷⁰⁶ regulate cooperation among member states.⁷⁰⁷ The RCF serves as a basis for the formulation of AFRA regional programmes and, in turn, will be used as a frame of reference in the process of the development of AFRA regional projects. In this context it is expected that the RCF will lead to the implementation of effective and efficient regional cooperation mechanisms.⁷⁰⁸ In terms of its RCF the AFRA has identified five thematic areas⁷⁰⁹ which should enjoy the focus of member states when applying existing available regional expertise and facilities for the planning, implementation and auditing of cooperative programmes.⁷¹⁰ All of these activities, based on regional cooperation, are geared towards promoting technical cooperation in the areas of energy planning,⁷¹¹ human resources development,⁷¹² regional designated centres⁷¹³ and partnership building.⁷¹⁴

⁷⁰⁵ Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Chad, Central African Republic, Cote d'Ivoire, DRC, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Lesotho, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Seychelles, South Africa, Sudan, Tunisia, United Republic of Tanzania, Uganda, Zambia, Zimbabwe. See www.afra-iaea.org.dz/index.php/en/about-afra. [date of use 22 April 2013].

⁷⁰⁶ The purpose of the RCF is to identify and prioritise regional cooperation opportunities for the sustainable promotion of the peaceful application of nuclear science and technology, on the basis of an in-depth assessment of the most pressing regional development problems, needs and priorities in the African socio-economic context. See *AFRA Profile for the Regional Strategic Cooperative Framework (2008 – 2013)* 2.

⁷⁰⁷ Cooperation among member states and the AFREC; encouraging member states to comply with international requirements; encouraging member states to develop national legislation and regulatory infrastructure; upgrading existing regional radiation protection programmes; and promoting the exchange of information between regulatory authorities within the region. See *AFRA Profile for the Regional Strategic Cooperative Framework (2008 – 2013)* 13.

⁷⁰⁸ *AFRA Profile for the Regional Strategic Cooperative Framework (2008 – 2013)* 1.

⁷⁰⁹ Human health; food and agriculture; water resources; energy; and industrial applications. See *AFRA Profile for the Regional Strategic Cooperative Framework (2008 – 2013)* 3.

⁷¹⁰ *AFRA Profile for the Regional Strategic Cooperative Framework (2008 – 2013)* 3.

⁷¹¹ The wide variation in the stages of development in AFRA member states in the field of energy planning requires a careful approach regarding the design of the mechanism and framework under which all member states will benefit from regional cooperation. Factors which need to be taken into consideration include: strengthening and sustaining institutional capability, legislating cooperation between energy bodies on national levels, improving infrastructure and enhancing regional cooperation for energy planning.

⁷¹² AFRA member states implemented a regional strategy in human resource development and nuclear knowledge management through the AFRA Network for Education in Nuclear Science and Technology. The AFRA programme also supports the establishment of International Nuclear Information System centres for new AFRA member states and enhances the ability of existing national facilities to access nuclear information resources to support national and regional nuclear activities and programmes, to preserve national nuclear literature and to exchange expertise and share resources in the field of nuclear information processing.

Focusing on energy as a thematic area, regional cooperation must be geared towards sustainable energy development which in the context of the AFRA refers to energy planning which includes and reflects region/country-specific economic, social and environmental needs and challenges.⁷¹⁵ The wide variation in the stages of development in AFRA member states in the field of energy planning, however, requires a careful approach to the design of the mechanism and framework under which all African countries will benefit from regional cooperation. The AFRA identifies the following region-specific needs: strengthening sustained institutional capability for energy planning; information gathering and sharing on energy modelling; increasing access, improving infrastructure and upgrading the maintenance of energy equipment; developing and implementing human resource development programmes in the field of energy planning; and fostering collaboration among energy bodies at the national level.⁷¹⁶

5.7.2 The Africa – European Union Energy Partnership of 2008

A recent initiative committed to the promotion of sustainable development through nuclear energy expansion in Africa is the AEEP concluded in terms of the African-European Union Strategic Partnership (AEUSP).⁷¹⁷ The AEUSP is the culmination of a long history of interaction between the AU and the European Union (EU). The first EU-Africa Summit in Cairo, held in April 2000, launched a comprehensive framework for political dialogue between the EU and Africa on key issues. Increased regional integration in Europe as well as the establishment of NEPAD in 2001 and the transformation of the Organisation for African Unity into the AU in 2002 led to the

⁷¹³ Regional Designated Centres (RDCs) play a key role in promoting Technical Cooperation among developing countries. As of June 2009, 11 institutions focused on one or more of AFRA's thematic areas have been recognized by the AFRA member states as RDCs.

⁷¹⁴ AFRA programmes should include activities that are designed to strengthen regional networking and to facilitate and promote linkages with potential partners such as NEPAD, UNIDO, UNECA, AFREC and other regional economic communities. Partnerships with international organizations such as the IAEA and developing countries or regions such as the European Union will contribute towards regional cooperation and development.

⁷¹⁵ IAEA/AFRA 2010 6.

⁷¹⁶ IAEA/AFRA 7.

⁷¹⁷ AEUSP 2008 100.

drafting of the *EU Strategy for Africa* which policy frameworks mirrored the thematic areas identified during the Cairo Summit. Concerns that the EU Strategy for Africa might be biased towards a European priority agenda led to the adoption of a joint *EU-Africa Strategy* in 2007⁷¹⁸ and the subsequent AEUSP concluded in 2008.⁷¹⁹ The AEUSP proposes to achieve these objectives through the implementation of partnerships, priority actions and subsequent action plans identifying the main political priorities, as well as the policy commitments, programmes and actions that will be needed to achieve success in certain key areas. These Action Plans will also allow for the review and assessment of actions taken in terms of their mandates.⁷²⁰

One of the key areas identified is that of energy in Africa, which led to the conclusion of the AEEP in 2008 which lists nuclear energy as part of a diversified energy mix that will help to promote access to reliable, secure, affordable, climate friendly and sustainable energy.⁷²¹ The AEEP expressly states that expanding nuclear energy in Africa will furthermore have a positive impact on improving energy security and building energy infrastructure in Africa.⁷²² Both parties recognise the need for a stronger focus on sustainable energy and the management of energy sources, the promotion of access to energy, energy security and safety, and regional cooperation.⁷²³ Furthermore, the AEEP acknowledges the role of increased cooperation in the establishment of legal and regulatory frameworks regarding the peaceful use of nuclear energy at continental, regional and national levels in accordance with international legal instruments, standards and practices.⁷²⁴ To this

⁷¹⁸ European Centre for Development 2006 www.europafrika.files.wordpress.com. [date of use 22 April 2013].

⁷¹⁹ The fundamental commitments of the parties, which also encompass the objectives of the AEUSP, include the achievement of the MDGs, which include ending poverty and hunger, universal education, gender equality, child health, maternal health, combating HIV/AIDS, environmental sustainability and promoting global partnerships; the establishment of a robust peace and security architecture in Africa; the strengthening of investment, growth and prosperity through regional integration and closer economic ties; the promotion of good governance and human rights; and the creation of opportunities for shaping global governance in an open and multilateral framework. See The AEUSP 2008 10.

⁷²⁰ AEUSP 2008 53.

⁷²¹ AEUSP 2008 100.

⁷²² AEUSP 2008 100.

⁷²³ The overriding theme of the objectives of the AEEP is the improvement of effective dialogue between the parties on access to and the security of reliable, secure, affordable, climate friendly and sustainable energy.

⁷²⁴ AEUSP 2008 101.

end, the AEEP Action Plan promotes the establishment of enabling legal, fiscal and regulatory frameworks at the continental, regional and national levels in Africa⁷²⁵ in accordance with all relevant IAEA and Non-Proliferation Treaty (NPT)⁷²⁶ provisions and in line with international safety standards and rules.⁷²⁷ The NPT states as its objectives: to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy, and to further the goal of achieving nuclear disarmament and general and complete disarmament. The NPT is commonly regarded as consisting of three “pillars”, namely: non-proliferation, disarmament; and peaceful uses of nuclear energy. It should be noted that all signatories to the NPT also submit themselves to the international nuclear safeguards as set out by the IAEA. The NPT as such will not be discussed as part of the existing IAEA nuclear legal framework.

The most notable progress in achieving the objectives of the Energy Partnership relate to renewable energy and access thereto on the African continent. The Renewable Energy Cooperation Programme (RECP) was launched in 2010 by African and European leaders at the First High-Level Meeting of the AEEP. This was followed by the First Stakeholder Forum of the AEEP, which took place from 9-10 May 2012 in Cape Town, South Africa. The aim of the Forum was to achieve progress on the AEEP 2020 targets in the fields of renewable energy and energy efficiency, energy access, and energy security, with a focus on renewable energy.⁷²⁸ While the AEEP embodies an important forum for dialogue between the EU and African member states on key aspects of energy security, few tangible results in the nuclear energy field have come out of the AEEP.

5.7.3 *The African Nuclear-Weapon-Free Zone, 2009*

⁷²⁵ AEUSP 2008 30.

⁷²⁶ See the NPT available at <http://www.un.org/en/conf/npt/2010/npttext.shtml> [date of use 17 October 2012].

⁷²⁷ AEUSP 2008 45.

⁷²⁸ For further reading on the RECP visit www.aEEP-forum.org.

The Pelindaba Treaty, which entered into force in 2009, originated in 1964 with the (then) OAU declaring the de-nuclearisation of Africa under the auspices of the UN.⁷²⁹ Most recent numbers indicate that 36 AU member states have ratified the Pelindaba Treaty by means of depositing their instruments of implementation.⁷³⁰ In addition to the renunciation of nuclear explosive devices,⁷³¹ the prevention of the stationing of nuclear explosive devices on their territory,⁷³² the prohibition of the testing of nuclear explosive devices,⁷³³ the declaration, dismantling, destruction or conversion of nuclear explosive devices,⁷³⁴ and the prohibition of the dumping of radioactive waste.⁷³⁵ The Pelindaba Treaty also provides for the peaceful application of nuclear energy.⁷³⁶ In terms of the Pelindaba Treaty all parties must strive to promote the use of nuclear science and technology for economic and social development through the establishment of mechanisms for cooperation at the bilateral, sub-regional and regional level. To this end, the Pelindaba Treaty provides that member states should make use of the programme of assistance available from the IAEA⁷³⁷ in order to facilitate greater regional cooperation under the AFRA. For the purpose of ensuring compliance with its provisions, parties to the Pelindaba Treaty agreed to establish the African Commission on Nuclear Energy (AFCONE).⁷³⁸ As part of its mandate, the AFCONE must encourage regional and sub-regional programmes for cooperation in the peaceful uses of nuclear science and technology,⁷³⁹ promote international cooperation,⁷⁴⁰ facilitate the exchange of information between parties,⁷⁴¹ and review the peaceful application of peaceful nuclear activities.⁷⁴²

⁷²⁹ In drafting the Pelindaba Treaty the parties recognize the important role the African nuclear-weapon-free zone would play towards strengthening a non-proliferation regime, promoting cooperation in the peaceful uses of nuclear energy, promoting general and complete disarmament and enhancing regional and international peace and security through sustainable economic, social and environmental development. See Preamble to the Pelindaba Treaty.

⁷³⁰ Centre for Nonproliferation 2013 www.cns.miis.edu/inventory/pdfs/apmanwzfz.pdf [date of use 17 October 2012].

⁷³¹ Article 3 of the Pelindaba Treaty.

⁷³² Article 4 of the Pelindaba Treaty.

⁷³³ Article 5 of the Pelindaba Treaty.

⁷³⁴ Article 6 of the Pelindaba Treaty.

⁷³⁵ Article 7 of the Pelindaba Treaty.

⁷³⁶ Article 8(2) of the Pelindaba Treaty

⁷³⁷ The Legislative Assistance Programme and Technical Cooperation Programme. These programmes will be discussed as part of the IAEA legal framework in chapter 6 below.

⁷³⁸ Article 12 of the Pelindaba Treaty.

⁷³⁹ Article 12(2)(e) of the Pelindaba Treaty.

⁷⁴⁰ Article 12(2)(f) of the Pelindaba Treaty.

⁷⁴¹ Article 12(2)(a) of the Pelindaba Treaty.

The AFCONE was duly established in 2010 after the entry into force of the Pelindaba Treaty in 2009 and since then two meetings have been held by the twelve commissioners⁷⁴³ comprising the AFCONE. At the second meeting, which was held in Addis Ababa on 26 July, 2012, the commissioners adopted the rules of procedure, the structure, the programme of work and the budget of AFCONE. The commission will focus on the following four areas: the monitoring of compliance with non-proliferation obligations; nuclear and radiation safety and security; nuclear sciences and applications; and, partnerships and technical cooperation, including outreach and the promotion of peaceful uses of nuclear energy. The meeting agreed to a budget of some \$800,000 per year for the period 2012-2014. It also agreed on a scale of assessment for contributions to AFCONE's funding.⁷⁴⁴

In addition to the proposed establishment of the AFCONE, three protocols have been drafted in terms of the provisions of the Pelindaba Treaty. Protocol I calls on Protocol Parties to undertake not to use or threaten the use of a nuclear explosive device against any party to the Pelindaba Treaty or any territory within the African nuclear-weapon-free zone.⁷⁴⁵ Protocol II calls on Protocol Parties to undertake not to test or assist or encourage the testing of any nuclear explosive device anywhere within the African nuclear-weapon-free zone.⁷⁴⁶ Protocol III calls on Protocol Parties to ensure the application of articles 3 tot 10 of the Pelindaba Treaty which pertains to renunciation of nuclear devices; prevention of the stationing of nuclear explosive devices; prohibition of the testing of nuclear explosive devices; declaration, dismantling, destruction or conversion of nuclear explosive devices and the facilities for their manufacture; prohibition of dumping of radioactive wastes; peaceful nuclear

⁷⁴² Article 12(2)(c) These safeguards will be equivalent in scope and effect to the agreement required in connection with the IAEA Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/153). A party that has already entered into a safeguards agreement with the IAEA is deemed to have already complied with this requirement and must ensure compliance within 18 months. Annex II of the Pelindaba Treaty.

⁷⁴³ The commissioners represent the following countries: Algeria, Burkina Faso, Cameroon, Ethiopia, Kenya, Libya, Mali, Mauritius, Senegal, South Africa, Togo and Tunisia.

⁷⁴⁴ www.world-nuclear-news.org/NP-African_nuclear_commission_takes_shape-1308124.html. [date of use 17 October 2012].

⁷⁴⁵ Article 1 of Protocol I of the Pelindaba Treaty.

⁷⁴⁶ Article 1 of Protocol II of the Pelindaba Treaty.

activities; verification of peaceful uses; and physical protection of nuclear materials and facilities.

The purpose of the regional nuclear energy initiatives discussed above is to implement different strategies based on the principles of cooperation and harmonisation, geared towards the establishment of an internationally acceptable regional nuclear legal framework. With reference to the concept of “internationally acceptable” the provisions of the Pelindaba Treaty, the AFRA and the AEEP refer to the relevance of the existing IAEA nuclear legal framework and its component parts. In the following chapter, the author will provide the reader with an overview of the legal instruments comprising the IAEA legal framework. The author will propose that the IAEA legal framework inform the AU normative response which is to be embodied in a coordinated nuclear legal framework.

5.8 Conclusion

The objective of promoting sustainable development in Africa must be achieved by integrating African economies, promoting cooperation in all fields of human activity to raise the living standards of African peoples, coordinating and harmonising policies between existing and future RECs, and advancing the development of the continent by promoting research in all fields, particularly science and technology.⁷⁴⁷ Regional cooperation on policy harmonisation on matters of common concern is one of the approaches followed by the AU in an effort to achieve regional integration.⁷⁴⁸ Thus far, however, these efforts have proven less than successful. The reasons for the lack of success are varied but relate to claims that the adoption of a European model of market integration is not suited to African needs.⁷⁴⁹ As other reasons, Opong lists multiple memberships of RECs and the nature of the relationship among the AU, the RECs and the AEC. These, he claims, are major challenges to future successes

⁷⁴⁷ See paragraph 5.1 above.

⁷⁴⁸ See paragraphs 5.2 and 5.4 above.

⁷⁴⁹ For a general overview of the reasons behind the failure of AU attempts at regional integration see paragraph 5.4 at notes 620, 624, 629, 630 and 631 above.

in African integration. Proposed solutions to these challenges include the drafting of a one-country-one-membership protocol and the formulation of a protocol specifically regulating the merger of the RECs into the AEC.⁷⁵⁰ Regional cooperation on the formulation of coordinated regional and/or sub-regional law and policy remains an objective of the AU despite the challenges to its implementation.

In order to address the challenges related to increasing access to modern energy access, the collective efforts of AU member states and/or RECs must be focused on the formulation of coordinated regional and/or sub-regional policies regulating the supply of energy. Among the RECs, the EAC, the ECOWAS and the SADC have affirmed the objective of achieving sustainable development through regional cooperation and identified access to modern energy as being a crucial factor in attaining this objective. A coordinated approach has proven successful at the sub-regional level, with a host of RECs boasting initiatives aimed at achieving increased access. These initiatives, while their methods of implementation differ, share the common mandate of increasing access to modern energy geared towards sustainable development.⁷⁵¹ One of the sources of modern energy is that of nuclear energy.⁷⁵²

The initiatives and instruments comprising the current AU nuclear legal framework⁷⁵³ reiterate the importance of regional cooperation in fostering coordinated regional approaches to nuclear expansion. The current AU nuclear legal framework finds its basis in the mandate contained in the provisions of the Abuja Treaty, which provides that AEC member states must coordinate and harmonise their nuclear energy policies and programmes. Closely related to the objective contained in the Abuja Treaty is that contained in the CAFREC, which affirms the relationship between activities such as cooperation among member states, the formulation of coordinated regional energy law and policy, and achieving the objective of promoting sustainable

⁷⁵⁰ See paragraph 5.4 above.

⁷⁵¹ For an overview of these initiatives see paragraphs 5.5.1 – 5.5.3 above.

⁷⁵² See notes 686 and 689 above.

⁷⁵³ See paragraph 5.5 above.

development.⁷⁵⁴ These activities are set to take place in terms of the Protocol on Energy and Natural Resources mandated by the Abuja Treaty. To date, no such Protocol has been drafted.

Alongside the Abuja Treaty, the AFRA exists as an intergovernmental agreement between the IAEA and African member states and focuses on expanding the contribution of nuclear science and technology to the development of the AU. The AFRA stresses the important role of technical cooperation among member states and the IAEA with the proposed outcome being the establishment of nuclear power programmes through nuclear energy expansion.⁷⁵⁵ Another significant nuclear energy initiative is the AEEP concluded in terms of the provisions of the AEUSP. The existence of the AEEP again demonstrates the link between sustainable energy, the promotion of African development, and the regulation of nuclear expansion according to an internationally acceptable nuclear legal framework.⁷⁵⁶ A final regional nuclear legal instrument discussed was the Pelindaba Treaty, which deals almost exclusively with the topic of nuclear safety and security. It provides for the establishment of the AFCONE as a regional nuclear regulatory body encouraging regional cooperation on aspects related to nuclear expansion in Africa.⁷⁵⁷ These regional nuclear energy legal instruments and initiatives share in common not only the agenda of establishing a harmonised regional nuclear energy legal framework for the regulation of nuclear energy expansion but also acknowledge the importance of ensuring that the legal framework is internationally acceptable. In this regard the provisions of the AFRA, the AEEP, and the Pelindaba Treaty refer to the existing IAEA legal framework and its components.

An area of specific relevance to the ambit of this thesis is the formulation of an internationally acceptable, coordinated AU nuclear legal framework. It is put forward that the legal instruments comprising the IAEA international nuclear legal framework provide the framework for what should be understood as an internationally

⁷⁵⁴ See note 210 above.

⁷⁵⁵ See paragraph 5.7.1 above.

⁷⁵⁶ See paragraph 5.7.2 above.

⁷⁵⁷ See paragraph 5.7.3 above.

acceptable nuclear legal framework. It is recommended that the efforts of the AU in formulating and implementing a coordinated nuclear legal framework should take place in accordance not only with the provisions of the IAEA legal framework but also in accordance with its assistance programmes. In short, the author proposes that the IAEA legal framework informs the normative response of AU law and policy-makers on what is to be included in a coordinated AU nuclear legal framework.

6 The AU normative response to regulating increased access to nuclear energy

6.1 Introduction

At the international level, the legal framework of the IAEA proposes to regulate the peaceful uses of nuclear technology. The IAEA legal framework consists of nuclear legislation which takes the form of a set of binding and non-binding international legal instruments.⁷⁵⁸ These legal instruments are based on general and specific principles of international nuclear law which have evolved through a process of intense international cooperation. It was concluded in the previous chapter that an internationally acceptable, coordinated AU nuclear legal framework should serve the purpose of regulating increased access to nuclear energy in such a manner as to promote sustainable development. A number of the regional nuclear initiatives currently operating at the AU level stipulate that the further development of nuclear policies and programmes (at the regional level) should take place in accordance with the provisions of the IAEA legal framework. The assumption is therefore made that the IAEA legal framework should be considered the benchmark for an internationally acceptable nuclear legal framework and that the proposed coordinated AU nuclear legal framework should be based there-on. The central hypothesis throughout this chapter is that the establishment of legal and regulatory frameworks regarding the peaceful use of nuclear energy at regional, sub-regional and national levels must take place in accordance with all relevant provisions of the IAEA. This assumption and hypothesis lead to the following question, which is also the central research question of this thesis, namely: what should components of an internationally acceptable, coordinated AU nuclear legal framework be?

⁷⁵⁸ An overview of these instruments will be provided in paragraph 6.3.

The main aim of this chapter is to identify the legal instruments comprising the current IAEA legal framework and propose the inception thereof into a coordinated AU nuclear legal framework. In so doing the following related topics will warrant elaboration. The chapter will start with an overview of nuclear law, nuclear legislation and the principles of nuclear law. This will be followed by an in-depth discussion of the IAEA and its evolution as an international agency with the role of coordinating international efforts in the field of nuclear law, policies and programmes. Next, the IAEA legal framework will be discussed with reference to the various binding and non-binding legal instruments which comprise it. This discussion will include an overview of the important IAEA assistance programmes which are available to developing/under-developed states.

6.2 International nuclear law

The body of national and international law applicable to the nuclear industry has developed in three fairly distinct phases. The first phase, beginning in the late 1940s and early 1950s, can be viewed primarily as one in which law was an instrument for the promotion of the peaceful use of nuclear power. In the view of many influential parties, the obvious safety concerns about harnessing a man-made force for destruction with its origins in warfare could be overcome. A second phase, commencing roughly from the time of the Chernobyl accident in 1986, has been characterised by the use of law as a source of constraint amid renewed concerns about safety. The most recent phase is one in which a cautious rebalancing of these elements of constraint and promotion appears to be taking place.⁷⁵⁹ The definition of nuclear law is closely related to the objective of nuclear law which, combined, serve to distil the fundamental principles of nuclear law. In the first instance, nuclear law is defined by the IAEA as:

⁷⁵⁹ Cameron PD "The Revival of Nuclear Power: an Analysis of the Legal Implications" 2007 *Journal of Environmental Law* 19(1) 78; Cameron ea *Nuclear Energy Law After Chernobyl* 213; and Edmondson "The Chernobyl Accident and its Causes" 205 – 211.

The body of special legal norms created to regulate the conduct of legal or natural persons engaged in activities related to fissionable materials, ionising radiation and exposure to natural sources of radiation.⁷⁶⁰

The definition comprises four key elements. First, as a body of special legal norms, nuclear law is recognised as part of general national legislation. Second, the element of regulation incorporates the “risk-benefit approach” that is central to any activity which presents both hazards and advantages for social and economic development.⁷⁶¹ The third and fourth components of the definition of nuclear law refer respectively to the conduct of legal and/or natural persons and the element of radioactivity as the defining feature justifying a legal regime. The fundamental reason underlying the decision of a regulatory body to promulgate nuclear legislation is summarised by the primary objective of nuclear law, which is described as:

To provide a legal framework for conducting activities related to nuclear energy and ionising radiation in a manner which adequately protects individuals, property and the environment.⁷⁶²

Considering the definition of nuclear law in conjunction with its objective, two distinct but inter-related challenges to the field of nuclear law and nuclear legislation are observed. In the first instance, it must be taken into consideration that there cannot be a “one size fits all” approach to drafting nuclear legislation. In order to be considered efficient and effective, nuclear legislation must fit into a state or region’s overall legal and regulatory structure and reflect the level and direction of its existing or future nuclear programme. Secondly, notwithstanding the individual requirements of national legal systems, substantial benefits are connected with achieving the greatest degree of harmonisation and consistency among the legislative frameworks of states in the field of nuclear law and subsequent nuclear legislation.⁷⁶³

⁷⁶⁰ Stoiber *et al Handbook on Nuclear Law* 2003 4.

⁷⁶¹ The risk-benefit approach is consistent with the International Sustainable Development Law Principle of the precautionary approach to human health, natural resources and ecosystems as prescribed by the provisions of the New Delhi Declaration.

⁷⁶² Stoiber *et al Handbook on Nuclear Law* 2010 5.

⁷⁶³ Stoiber *et al Handbook on Nuclear Law* 2010 2.

6.2.1 Nuclear legislation

As reflected by the objective of international nuclear law, which refers to the protection of people, property and the environment, nuclear legislation is intended to govern nuclear activities for peaceful purposes.⁷⁶⁴ The main components of nuclear legislation can be broadly identified as dealing with the following topics: radiation protection and the regulatory control of radioactive materials and other sources of ionizing radiation, including environmental protection; nuclear safety and the regulatory control of nuclear installations, including radioactive waste management; the safe transport of radioactive materials; the physical protection of nuclear materials and installations; materials accounting and control systems; and third-party liability for nuclear damage.⁷⁶⁵

With specific reference to setting out the guiding principles of effective nuclear energy legislation on topics related to the 3S concept (safety, security and safeguards), the principles of nuclear law are especially relevant.⁷⁶⁶ The 3S concept distilled from existing nuclear law could contribute to guiding legislators towards framing further harmonised nuclear legislation. The following sections of this dissertation are aimed at providing the reader with a broad overview of the legal status of the principles of international nuclear law and their content. The interaction between these principles and the normative content of the concept of sustainable development will be highlighted throughout.

⁷⁶⁴ Its purview is basically: to provide a legislative framework for regulating the safe development and use of nuclear energy in the common interest of mankind, taking into account related undertakings accepted by the state through conventions or treaties; to set out accordingly the guiding principles and implementing conditions; to establish a regulatory structure vested with sufficient authority to ensure effective control and supervision of authorised activities; and to provide for adequate financial protection against nuclear damage in the event of a nuclear accident. See Blix 1989 *Nordic Journal of International Law* 58.

⁷⁶⁵ Cameron 2007 *Journal of Environmental Law* 71–87; and ElBaradei M, Nwogugu E and Rames J "International law and nuclear energy: Overview of the legal framework" 1995 *IAEA Bulletin* 16 – 26.

⁷⁶⁶ Stoiber *et al Handbook on Nuclear Law* 2010 4.

6.2.2 Principles of nuclear law

Nuclear law is based on a number of underlying principles.⁷⁶⁷ As was stated above, it is based on the key concepts of safety, security and safeguards, and it should therefore follow that one could trace the principles of nuclear law back to those specific concepts. Some principles are specific in nature, which means that they cross-cut all nuclear activities, while others apply to certain nuclear activities specifically, while others are universal. The first of the cross-cutting principles is the principle of safety, which can be divided into the subsidiary principles of prevention, protection and precaution.⁷⁶⁸ The prevention principle holds that given the special character of the risks of using nuclear energy, the primary objective of nuclear law is to promote the exercise of caution and foresight so as to prevent damage that might be caused by the use of the technology, and to minimise any adverse effects resulting from misuse or accidents. Complementary to the prevention principle is the protection principle, which holds that any regulatory regime should balance the social risks and benefits related to the application of nuclear technology. Where the risks associated with an activity are found to outweigh the benefits, priority must be given to protecting public health, safety, security and the environment.⁷⁶⁹

A second category of cross-cutting principles consists of those governing the dealings among the various parties involved in the generation, distribution and use of nuclear energy. Grouped under this heading are the principle of independence or responsibility; the liability principle and the principles of transparency and participation. The most important issue addressed by the principle of independence or responsibility is the establishment of an independent regulatory authority. The primary task of an independent regulatory authority is to implement nuclear law in accordance with the international nuclear legal regime without interference from entities involved in the development or promotion of nuclear energy. The use of

⁷⁶⁷ Desart RD "The Reform of the Paris Convention on Third Party Liability in the Field of Nuclear Energy and of the Brussels Supplementary Convention An Overview of the Main Features of the Modernisation of the two Conventions" 2005 *Nuclear Law Bulletin* 215.

⁷⁶⁸ de Pompignan D "Law on the Peaceful Uses of Nuclear Energy: Key Concepts" 2007 *Nuclear Law Bulletin* 49.

⁷⁶⁹ Adorno R "The Precautionary Principle: A New Legal Standard for a Technological Age" 2004 *Journal of International and Business Law* 25.

nuclear energy typically involves numerous parties, which may include research and development organisations, processors of nuclear material, manufacturers, nuclear operators, financial institutions and regulatory bodies. With so many parties potentially engaged in nuclear-related activities, a question as to which party is responsible for ensuring nuclear safety is inevitable.⁷⁷⁰ In terms of the liability principle it is generally accepted that the operator or licensee who has been granted the authority to conduct the specific nuclear energy activity should be the responsible party in the event of misuse or an accident.⁷⁷¹ The public's lack of understanding of and confidence in the technology requires that all concerned parties be provided with the fullest possible information concerning the risks and benefits of using various nuclear related techniques for economic and social development. The transparency principle requires that bodies involved in the development, use and regulation of nuclear energy make available all relevant information concerning how nuclear energy is being used, particularly concerning incidents and abnormal occurrences that could have an impact on public health, safety and the environment.⁷⁷²

Principles relating to certain specific nuclear activities include the principle of non-proliferation or the security principle, while universal principles such as the sustainable development principle, the compensation principle and the international cooperation principle exist as a result of broader universal considerations. The security principle finds its origin in various aspects of the application of nuclear and iodising technologies. Just as certain nuclear material and technologies pose health and safety risks if they were to be diverted to non-peaceful ends, they also pose risks to the security of persons and social institutions. This necessitates the establishment of special legal measures to protect and account for the types and quantities of nuclear material that may pose security risks – both accidental and intentional diversion from their legitimate uses.⁷⁷³ The object of building nuclear power stations in Africa being to promote sustainable development, which places a duty on each generation not to impose undue burdens on future generations,⁷⁷⁴

⁷⁷⁰ Keifels ea "Apportioning Liability for Transborder Damages" 133.

⁷⁷¹ Desart 2005 *Nuclear Law Bulletin* 215; and de Pompignan 2007 *Nuclear Law Bulletin* 49.

⁷⁷² Cameron 2007 *Journal of Environmental Law* 71–87

⁷⁷³ Pelzer "Learning the Hard Way" 73–118.

⁷⁷⁴ Cameron 2007 *Journal of Environmental Law* 75, 81.

which duty can be discharged only if the world's environment is protected from degradation. It is necessary, then, to ensure that the material used in the generation of nuclear energy does not pose serious health, safety and environmental risks to future generations, especially as nuclear waste remains active for very long periods of time. The character of these materials has made it difficult to determine what should be done to protect the future. One approach has been to urge that the current generation does whatever is possible for long-term safety but without foreclosing options for future generations.⁷⁷⁵ This approach needs to be included not only in the regulatory measures comprising the nuclear legal framework of any state or region but should form part of the general development strategy of any given region. Depending on various technical factors, the use of nuclear energy poses the risk of major damage to persons, property and the environment even in the presence of a wide variety of preventative measures. The compensation principle of nuclear law requires that legal measures be adopted to provide adequate compensation in the event of a nuclear accident.⁷⁷⁶ Even in situations for which the highest standard of safety has been achieved, the occurrence of nuclear accidents cannot be completely excluded. Nuclear legislation must therefore provide legal regimes to compensate for nuclear damage, which legislation must take into consideration the trans-boundary and inter-generational nature of nuclear damage.⁷⁷⁷ This realisation has led to international cooperation geared towards establishing an international nuclear liability regime based on a variety of international conventions. The international cooperation principle relates to the need for the users of nuclear techniques and the regulators of nuclear activities to maintain close relationships with their counterparts in other states and relevant international organisations. The international dimension of nuclear law is based on several factors which underline the need for the cooperation envisaged by the principle. In the first instance, regarding the aspects of safety and the environment, the potential for trans-boundary impacts requires governments to harmonise their policies and develop cooperative programmes so as to reduce the risk of damage not only to their own citizens and territories, the global population and the planet as a whole, but also to future

⁷⁷⁵ Horbach *Contemporary Developments in Nuclear Energy Law* 128.

⁷⁷⁶ McRae "The Compensation Convention" 88.

⁷⁷⁷ Cameron "2007 *Journal of Environmental Law* 81; ElBaradei ea 1995 *IAEA Bulletin* 19; and Blix H "The Role of the IAEA in the Development of International Law" 1989 *Nordic Journal of International Law* 234.

generations.⁷⁷⁸ Secondly, and this is closely related to the first point, is the fact that the use of nuclear material involves security risks that do not respect national borders. Threats of terrorist acts and the threats associated with illicit trafficking in nuclear material and the proliferation of nuclear explosives have long been recognised as matters requiring a high level of international cooperation.⁷⁷⁹

The origin of some of the principles of nuclear law principles described above lies in binding international conventions relating to the peaceful uses of nuclear energy.⁷⁸⁰ The principles originating from binding international legal instruments must, once a state has ratified the convention, be included in national legislation.⁷⁸¹ This means that the status of the principles contained in binding international conventions are legally binding upon states to the extent to which these conventions are ratified. The safety principles and other universal principles such as the sustainable development principle and international cooperation principle were formulated within the context of the development of environmental law and are based on legally non-binding instruments such as the Rio Declaration.⁷⁸² This should not be seen to infer that these non-binding principles cannot be introduced into national legislation. On the basis of fulfilling the requirements of *opinio juris* and repeated state practice, it is submitted that these principles may qualify as customary international law and become binding principles of nuclear law. As with the principles of sustainable development law, certain principles of nuclear law have indeed been approved by *opinio juris*, but the element of repeated state practice is more difficult to establish.⁷⁸³ The inclusion in nuclear law of key concepts derived from the principles of nuclear law can therefore result from an international legal obligation or from their inclusion in international nuclear law instruments, even non-binding ones, on matters of common global concern. A set of nuclear law instruments which is widely held to

⁷⁷⁸ EIBaradei ea *The International Law of Nuclear Energy* 16.

⁷⁷⁹ Blix 1989 *Nordic Journal of International Law* 58 238.

⁷⁸⁰ These include non-proliferation, physical protection and nuclear liability. The origins of these principles will be discussed in paragraph 6.3 below.

⁷⁸¹ See for instance article 18 of the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, 1997.

⁷⁸² Cameron 2007 *Journal of Environmental Law* 81.

⁷⁸³ de Pompignan 2007 *Nuclear Law Bulletin* 51.

embody the key concepts of international nuclear law is the international nuclear legal framework of the IAEA.

6.3 IAEA legal framework

The IAEA was created in 1957 in response to the deep fears and expectations resulting from the discovery of the potential of the atom.⁷⁸⁴ The IAEA Statute outlines the three pillars of the Agency's work, namely nuclear verification and security, safety, and technology transfer.⁷⁸⁵ In 1957, two more international bodies were created, namely the European Atomic Energy Agency (EURATOM) and the Nuclear Energy Agency (NEA).⁷⁸⁶ While the work of EURATOM and the NEA should not be understated, the IAEA remains the only truly global organisation with competence in the field of nuclear energy, and focus will therefore fall on the international instruments comprising its legal framework.⁷⁸⁷

While the establishment of the IAEA and subsequent drafting of its Statute undoubtedly initiated the movement towards a global nuclear security regime, the accident at the Chernobyl nuclear power plant in 1986 underlined some significant deficiencies and gaps in the international legal and regulatory norms established to govern the safe and peaceful use of nuclear energy.⁷⁸⁸ This proved to be the impetus for increased international co-operation on establishing a global nuclear safety regime. In this regard the IAEA has set out an international legal framework (ILF) to gear cooperative efforts toward building and strengthening a global nuclear regime. The envisaged regime would be based on four principal elements, namely the adoption of and widespread subscription to binding and non-binding international

⁷⁸⁴ The Agency's genesis was US President Eisenhower's "Atoms for Peace" address to the General Assembly of the UN on 8 December 1953. These ideas helped to shape the IAEA Statute, which 81 nations unanimously approved in October 1956 available at <www.iaea.org/About/history.html> accessed on 18 September 2010.

⁷⁸⁵ Article 3 of the IAEA Statute.

⁷⁸⁶ EURATOM was set up under the auspices of the European Economic Communities while the NEA resorted under the authority of the Organisation of Economic Development (hereinafter referred to as the OECD). See Varfis "Nuclear Issues" 102.

⁷⁸⁷ Varfis "Nuclear Issues" 101.

⁷⁸⁸ Rautenbach et al "Joint Report" 7.

legal instruments; a comprehensive suite of nuclear safety standards that embody good practices pertaining to nuclear safety; a range of international safety advisory reviews and services; and the establishment of the national legal and regulatory infrastructures necessary to implement stringent safety measures.⁷⁸⁹

In essence the ILF consists of binding international legal instruments, which predominantly take the form of treaties and conventions as well as non-binding international legal instruments, most notably codes of conduct.⁷⁹⁰ In order to obtain clarity as to the content of the instruments comprising the IAEA ILF, an overview of the main international legal instruments comprising the framework will be provided. With reference to the legally binding treaties and conventions as well as the non-binding codes of conducts, the instruments will be discussed in terms of the aspect of nuclear law they specifically pertain to. The provisions of the regional nuclear initiatives as elaborated upon in paragraph 5.7 above which stipulate that the regulation of nuclear energy activities in Africa should take place in accordance with the provisions of the IAEA legal framework leads to the following proposal. That the coordinated AU legal framework aimed at regulating the increased access to nuclear energy be formulated in accordance with the legal instruments comprising the IAEA legal framework. In essence, it is put forward that the instruments comprising the IAEA legal framework provide the minimum regulatory foundation of African efforts towards nuclear energy expansion.

6.3.1 Emergency preparedness and response

The nuclear accident at Three Mile Island in New York in 1979 and the Chernobyl accident in 1986 served as the catalyst for intense international cooperation on establishing an international nuclear safety regime. The international guidelines set

⁷⁸⁹ Rautenbach ea "Joint Report" 8.

⁷⁹⁰ The implementation of the provisions contained in either the binding or non-binding instruments comprising the IAEA ILF in the legal framework of any member state depends on the adoption of the instrument and subscription thereto. See Rautenbach ea "Joint Report" 8.

out by the IAEA⁷⁹¹ were replaced by two internationally binding commitments related to the notification of a nuclear accident and providing assistance where necessary. These commitments took the form of the *Convention on Early Notification of a Nuclear Accident*, 1986⁷⁹² and the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*, 1986.⁷⁹³ The conventions share in common the objective of minimising and/or mitigating the consequences of a nuclear accident and of protecting life, property and the environment. The provisions contained in the two conventions establish in treaty form the duty of the state to notify the international community of nuclear accidents with actual or possible trans-boundary effects and the duty of states to cooperate in arranging for assistance in the case of a nuclear accidents or radiological emergencies.⁷⁹⁴ The IAEA's principal role with regard to international arrangements for a response to a nuclear or radiological emergency is to establish and provide for the application of the relevant international safety standards which constitute the basis for international cooperation which should ultimately be geared towards minimising the consequences for human well-being, property and the environment.⁷⁹⁵

6.3.2 Nuclear security

A further component of the IAEA ILF is that of nuclear security, and more specifically, physical protection. The overall objective of the international regime adopted under the auspices of the IAEA governing the physical protection of nuclear material is to have a strong protection regime – one in which security is everywhere

⁷⁹¹ IAEA *Guidelines* 1985 and the IAEA *Guidelines* 1984.

⁷⁹² IAEA Document INFCIRC/335.

⁷⁹³ IAEA Document INFCIRC/336/Add.1.

⁷⁹⁴ While the two conventions pertaining to Early Notification and Assistance are the key elements of the international legal framework for international cooperation and coordination in the field of nuclear safety and security, there have been a number of practical arrangements and mechanisms which have contributed towards greatly towards the international nuclear emergency preparedness and response system. The most prominent of these are the IAEA Incident and Emergency Centre; the Emergency Notification and Assistance Technical Operations Manual (EPR-ENATOM 2004); and the Emergency Response Network Manual (EPR-ERNET 2002). In addition, with regard to the interactions between various international organisations during an emergency, the IAEA regularly convenes the Inter-Agency Committee on Response to Nuclear Accidents with the general purpose of coordinating the arrangements of the relevant international organisations for preparing for and responding to nuclear emergencies.

⁷⁹⁵ See the IAEA Safety Requirements 2002.

and at an acceptable level.⁷⁹⁶ The physical protection regime includes binding and non-binding international legal instruments emanating from a set of guidelines concerning specifics about physical protection measures drafted in 1972.⁷⁹⁷ Included in this regime are a number of physical protection objectives and fundamental principles which provide the basic elements that states need to take into account when developing their national regimes for improving nuclear security.⁷⁹⁸

With reference to legally binding international instruments governing the legal aspect of nuclear security and more specifically the physical protection of nuclear materials, the *Convention on Physical Protection of Nuclear Material*⁷⁹⁹ (CPPNM) entered into force in 1987. The CPPNM, the existence of which is a clear indication of the important role the IAEA plays as an international forum on security matters, obliges states to take action under their internal criminal legal systems.⁸⁰⁰ The original CPPNM proved to be inadequate, however, in that it failed to cover major aspects of physical protection; did not commit states to regulate the domestic use, storage and transport of nuclear material; and did not lay down obligations regarding the protection of nuclear material and nuclear facilities against sabotage.⁸⁰¹ In order to address these deficiencies an Amendment to the CPPNM was adopted in 2005 which provided for an expanded regime and strengthened the CPPNM in three main areas, namely the effective physical protection of nuclear material and of nuclear facilities, preventing and combating offences relating to nuclear material and nuclear

⁷⁹⁶ Nuclear security means "the prevention and detection of and response to, theft, sabotage, unauthorised access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities." See IAEA Physical Protection 2002.

⁷⁹⁷ The recommendations originated as "Recommendations for the Physical Protection of Nuclear Material" prepared by a panel of experts convened by the IAEA Director General. See the Physical Protection of Nuclear Material and Nuclear Facilities IAEA document INFCIRC/225/Rev.

⁷⁹⁸ For a discussion of these objectives and principles, see the "Physical Protection Objectives and Fundamental Principles" IAEA "Security Fundamentals" document 2001. See also De Lourdes Vez Carmona M "The International Regime on the Physical Protection of Nuclear Material and the Amendment to the Convention on the Physical Protection of Nuclear Material" 2005 *Nuclear Law Bulletin* No. 76 42 at note 44.

⁷⁹⁹ IAEA document INFCIRC/274/Rev.1. Hereinafter referred to as the CPPNM.

⁸⁰⁰ The CPPNM provides for states to make the intentional commission of certain acts (theft or the robbery of nuclear material, threatening to use nuclear material to cause death, and other ancillary offences such as participating or attempting to participate in such acts) punishable offences under their national law. States must furthermore establish jurisdiction over such offences and detain alleged offenders for the purpose of prosecution or extradition.

⁸⁰¹ Rautenbach et al "Joint Report" 24.

facilities, and facilitating cooperation among states in the case of a credible threat of sabotage or actual events of sabotage.⁸⁰² The amendments made to the CPPNM have led to a holistic and comprehensive approach to strengthening the nuclear security of IAEA member states with focus falling on three main issues, namely needs assessment, analysis and coordination; prevention; and detection and response.⁸⁰³ The integrated nature of the IAEA legal framework is evident in the synergies among the legal instruments – whether binding or non-binding – comprising both the safety component of the framework and the security component.

6.3.3 *Safety of nuclear power plants*

The need for an international convention to develop a set of minimum worldwide standards for the safety of nuclear power plants was voiced as early as in the 1960s but was met with resistance from the international community, which was reluctant to go beyond the recommendatory nature of the existing safety standards and move toward a legally binding international instrument. This situation was once again underlined by the trans-boundary consequences of the Chernobyl accident. Furthermore, it was recognised that while each state operating a nuclear power plant bears full and unequivocal responsibility for the safety of its nuclear power plants, the maintenance of safety was an international responsibility.⁸⁰⁴ This led to the call for "the creation of an international regime for the safe development of nuclear energy," which was echoed by an international request for the establishment of an "International Nuclear Safety Regime" which would include methods of verification, the exchange of information, and peer review.⁸⁰⁵ The policymakers now recognised the potential value of an inclusive approach to a regulatory framework.⁸⁰⁶ This

⁸⁰² De Lourdes Vez Carmona 2005 Nuclear Law Bulletin 41.

⁸⁰³ See IAEA Nuclear Security Plan for 2006-2008 which resulted from the IAEA Plan of Activities to Protect Against Nuclear Terrorism, 2002-2005.

⁸⁰⁴ Rautenbach ea "Joint Report" 13.

⁸⁰⁵ Opening address of the President of the International Conference on the Safety of Nuclear Power: Strategy for the Future (held in Vienna, 2 – 6 September 1991) available in the *Safety of Nuclear Power: Strategy for the Future, Proceedings of a Conference* IAEA document STI/PUB880, 1992 9.

⁸⁰⁶ See the report by the IAEA Director General on an Outline of the Possible Elements of a Nuclear Safety Convention in IAEA document GOV/2567, 21 January 1992.

culminated in the drafting and subsequent adoption of the *Convention on Nuclear Safety*, 1994 (CNS).⁸⁰⁷

The CNS was opened for signature in 1994, entered into force in 1996, and ten years later every country in the world with an operating nuclear power plant was party to the CNS.⁸⁰⁸ The provisions of the CNS require states to fulfil a number of obligations relating to the regulation, management and operation of nuclear power plants. These include the fundamental obligation to establish and maintain a legislative and regulatory framework with respect to the safe management and operation of land-based civil nuclear power plants and to implement a number of safety measures based on general, internationally accepted safety considerations as well as technical matters.⁸⁰⁹

The CNS is considered an “incentive convention”⁸¹⁰ which relies on a common interest among the interested parties to achieve the highest possible levels of safety, rather than deriving its effectiveness from specific obligations, sanctions for non-compliance, or a reliance on provisions for dispute settlement. The main aim of incentive conventions is to create expectations among interested parties and to embody a compendium of fundamental principles, while precise rules are excluded from the scope of the commitment undertaken.⁸¹¹ In effect, the convention is transformed into soft law by virtue of its content, while retaining its legal status as hard law.⁸¹² The issue of soft law in a treaty context will therefore relate to the material binding force resulting from its provisions. In other words, a rule of soft law

⁸⁰⁷ IAEA document INFCIRC/449.

⁸⁰⁸ Rautenbach “Joint Report” 14.

⁸⁰⁹ These include the availability of financial and human resources; the assessment and verification of safety; quality assurance and emergency preparedness; the siting of nuclear power plants; design, construction and operation.

⁸¹⁰ It should be stated that the term “incentive convention” is, strictly speaking, a term without precise meaning or precedent in international law. It occurs only in nuclear law and was created during the early drafting process of the CNS. Reference to the concept of the incentive convention can also be found in the text of the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, 1997.

⁸¹¹ Dinh NQ, Daillier P and Pellet A *Droit International Public* (Paris, Librairie générale de droit et de jurisprudence, 1987) 383 (translation obtained from Boustany K “The Development of Nuclear Law-Making or the Art of Legal ‘Evasion’” 1998 *Nuclear Law Bulletin* 44.

⁸¹² Boustany 1998 *Nuclear Law Bulletin* 45.

in a treaty is one which gives states greater freedom of action, whereas treaty hard law lays down strict rules.⁸¹³ An incentive conventions is rather like a "soft compliance" mechanism in international environmental law. Brunneé refers specifically to multilateral environmental agreements (MEAs) in this regard. The purpose of MEAs is to recognise and facilitate a response to common concerns; to build mechanisms for norm creation and adaptation; and to promote compliance in the context of polycentric problems where states are likely to be both the perpetrators and the victims.⁸¹⁴ MEAs enhance opportunities for voluntary compliance, whatever the underlying dynamics may be. For example, the extensive information gathering and reporting mechanisms established under most MEAs help shape states' understanding of the environmental problem at hand, and of the need for and feasibility of coordinated action.⁸¹⁵ In other words, MEAs can help states discover that coordinated action and (voluntary) compliance with regime demands are actually in their interests. A characteristic feature of modern MEAs is that they are not merely treaties but establish treaty bodies that facilitate on-going law-making processes.⁸¹⁶ In short, MEAs provide forums for on-going interactions and thus enhance opportunities for the emergence of shared understanding of the concern at hand, as well as of basic normative parameters.⁸¹⁷

In the CNS this commonality is achieved through cooperative efforts in the form of periodic meetings of the parties, where they are under an obligation to submit "national reports" on the implementation of their obligations under the CNS for "peer review" by other parties.⁸¹⁸ These national reports are the tools that enable parties to focus on the steps and measures already taken and the progress made in implementing the CNS's obligations as well as any gaps or deficiencies in existing nuclear safety legislation. The positive contribution of the CNS review process

⁸¹³ Boyle 1999 *International and Comparative Law Quarterly* 48 (4) 901-913.

⁸¹⁴ Brunneé J "COPing with Consent: Lawmaking under Multilateral Environmental Agreements" 2002 *Leiden Journal International Law* 1.

⁸¹⁵ See e.g. Article 5, Kyoto Protocol to the UNFCCC, reprinted in (1998) 37 *I.L.M* 22.

⁸¹⁶ An example of this is convening of regular meetings of plenary bodies such as Conferences of the Parties (COPs), of various subsidiary bodies and of an array of expert groups provide opportunities for interlinking policy, legal and technical discourses.

⁸¹⁷ Brunneé J "Enforcement Mechanisms in International Law and International Environmental Law" 2005 *Environmental Law Network International Review* 11.

⁸¹⁸ These national reports are the tools that enable parties to focus on the steps and measures already taken and the progress made in implementing the convention's obligations.

towards an increasingly integrated international nuclear safety legal regime cannot be overstated especially considering its role in facilitating openness, transparency and cooperation between parties on the topic of nuclear safety.

6.3.4 *Radioactive waste management*

An overview of the sustainability indicators of nuclear energy shows that the issue of radioactive waste management cuts across environmental, social and economic lines.⁸¹⁹ The inter-generational scope of the burden of managing radioactive waste and the long-lived nature of radioactive waste are issues of critical importance in regulating waste management effectively. In the earliest years of the development of an international nuclear legal framework, the so-called “back end of the nuclear fuel cycle” or the management of radioactive waste and spent fuel received little attention in the form of an international legal instrument. The parties to the CNS must aim to avoid imposing “undue burdens” on future generations, including burdens greater than those carried by the present generation. One leading environmental authority notes that this appears to be “the strongest provision on intergenerational equity in any environmental treaty”.⁸²⁰

The issue of radioactive waste management was an issue of strong public concern, which necessitated action from the international nuclear community in the form of the adoption in 1997 of the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* (Joint Convention).⁸²¹ The Joint Convention is generally referred to as the sister convention to the CNS, as both instruments set out a binding commitment by states to achieve and maintain a high level of safety worldwide and are considered to be “incentive conventions”. The Joint Convention covers spent fuel from nuclear power plants and research reactors and a variety of sources of radioactive waste from the nuclear industry as well as the

⁸¹⁹ See paragraph 5.3 above.

⁸²⁰ Birnie and Boyle *International Law and the Environment* 464.

⁸²¹ IAEA document INFCIRC/546.

trans-boundary movement of spent fuel and radioactive waste.⁸²² Obligations placed upon parties under the Joint Convention include: taking appropriate legislative, regulatory and administrative measures to govern the safety of spent fuel and radioactive waste management and to ensure that individuals, society and the environment are adequately protected against radiological and other hazards. In ensuring that these obligations are met, the provisions of the Joint Convention place the obligation on parties to participate in a “peer review” process – which is much the same as that provided for by the provisions of the CNS. Finally, pursuant to the Joint Convention, the *Action Plan on the Safety of Radioactive Waste Management, 2001* emphasises the importance of developing a structured and systematic programme to ensure the adequate application of the IAEA’s waste safety standards.

6.3.5 *Safety and security of radioactive sources and the safety of research reactors*

In addition to the treaty-making approach, the international community has taken a second approach to the normative control of nuclear risks through the adoption of legally non-binding norms governing the safe and peaceful uses of nuclear energy.⁸²³ To this end, two Codes relating to the safety and security of radioactive sources and the safety of research reactors respectively have developed into important components of the ILF.

6.6.5.1 Code of Conduct on the Safety and Security of Radioactive Sources, 2000⁸²⁴

The non-binding Code of Conduct on the Safety and Security of Radioactive Sources (CCSSRS) was adopted in 2000 and revised in 2001 in order to include strengthened provisions relating to the security of radioactive sources and additional components concerning national registries of sources, which include the

⁸²² For an overview of what is considered to be spent fuel and nuclear waste, see article 27 of the Joint Convention.

⁸²³ Rautenbach “Joint Report” 17.

⁸²⁴ IAEA/CODEOC/2001.

categorisation of sources.⁸²⁵ A general objective contained in the CCSSRS relates to achieving a high level of safety and security of civilian radioactive sources that may pose a significant risk to individuals, society and the environment. To this end, it includes guidance on general basic principles, legislation and the regulatory body.⁸²⁶ In an effort to counterbalance the legally non-binding nature of the Code of Conduct, the IAEA General Conference urges states to indicate, in writing, to the Director General their support and endorsement of the IAEA's efforts; that they are working towards following the guidance contained in the Code; and that they are encouraging other states to do the same.⁸²⁷

In support of the CCSSRS and its practical application, the IAEA continues to implement the revised *International Action Plan on the Safety and Security of Radioactive Sources* (Action Plan).⁸²⁸ The Action Plan concerns the promotion of greater international cooperation in addressing the security concerns raised by insufficiently controlled radioactive sources in the form of harmonised regulatory measures; the identification of those sources which pose the greatest risks; and the promotion of strong national action by all states to minimise those risks over the entire life-cycle of radioactive sources. With specific reference to the establishment of effective regulatory infrastructure, the Action Plan promotes mechanisms to encourage states to commit to the application of the CCSSRS by an assessment by the IAEA advisory mission, taking into consideration a host of relevant aspects.⁸²⁹

⁸²⁵ For a general overview of the revised Code see IAEA document INFCIRC/663.

⁸²⁶ See General Conference Resolution GC(48)/RES/10.D.

⁸²⁷ See operative paragraph 6 of General Conference resolution GC(47)/RES/7.B. In a similar fashion, operative paragraph 8 of General Conference resolution GC(48)/RES/10 states in reference to the provisions contained in the Supplementary Guidance to the Code of Conduct that states must act in accordance with the Guidance in a harmonised manner and to notify the Director General or their intention to do so as supplementary information to the Code of Conduct.

⁸²⁸ IAEA document GOV/2003/47-GC(47)/7.

⁸²⁹ These include: the degree of application of the Code of Conduct; facilitating dialogue among interested parties on appropriate means of controlling exports; use and return of radioactive sources consistent with the relevant provisions of the Code of Conduct; and the development of an appropriate Code of Practice defining the distinct roles and responsibilities of different parties during the life cycle of high risk sources. See IAEA document GOV/2003/47-GC(47)/7.

Finally, in an effort to achieve the safety and security of radioactive sources, the IAEA established the Radiation Safety and Security of Radioactive Sources Infrastructure Appraisal (the RaSSIA) in 2004. The RaSSIA is designed to provide the IAEA and its member states with the means of assessing progress in establishing national regulatory infrastructure; to provide recommendations relating to improvements in the event of deficiencies (against international standards and the CCSSRS); and to provide for the submission of an action plan for improving regulatory infrastructure.⁸³⁰

6.6.5.2 Code of Conduct on the Safety of Research Reactors, 2004⁸³¹

In 2000 the International Nuclear Safety Advisory Group (INSAG) brought it under the attention of the IAEA that a significant number of research reactors were in a state of extended shutdown with no definite plans for the future; that there were major issues related to the ageing of research reactors; that many research reactors had stockpiles of spent fuel; and that research reactors were not covered by the provisions of the CNS. In order to remedy this situation, the INSAG suggested the development of some form of legal instrument as a way of establishing a better international safety framework for research reactors specifically. As a result, the Code of Conduct on Safety of Research Reactors (CCSRR) was adopted by the IAEA in 2004.⁸³² The CCSRR is an important step towards an international nuclear safety regime for research reactors, comparable to that already in existence for nuclear power plants under the CNS. The objective of the CCSRR is to achieve and maintain a high level of safety in civilian research reactors worldwide through the enhancement of international cooperation on safety-related technical cooperation.⁸³³ In addition, the IAEA has established a number of safety standards that are

⁸³⁰ Rautenbach "Joint Report" 20.

⁸³² The text of the Code of Conduct is contained in General Conference document GC(48)7.

⁸³³ Closely related to the Code of Conduct and its application is the IAEA Research Reactor Safety Enhancement Plan, 2001 which focuses on establishing IAEA safety documents as the foundation upon which a global safety framework for research reactors is based; encouraging and assisting member states in the effective application of these safety documents; and fostering global and regional cooperation in research reactor safety.

fundamental to the enhancement of research reactor safety and also provides for their application through an advisory service, of which missions to member states by the Integrated Safety Assessment of Research Reactors (INSARR) is an example. These missions are the principal mechanism for monitoring and enhancing the safety of research reactors by addressing, in an integrated manner, all aspects of safety, including maintenance and regulatory oversight.⁸³⁴

In essence, the CCSRR still remains a legally non-binding instrument or soft law. However, even though it can be said that soft law provisions are supposed to have some normative effects, they are by their nature not binding in nature. This is stated very clearly in each of the Codes on the Safety of Nuclear Power Plants, which stipulate that:

(t)he Codes and Safety Guides are presented in such a form as to enable a Member State, should it so desire, to make their contents directly applicable to activities under its jurisdiction.⁸³⁵

It is therefore only if states decide that such instruments, or some of their provisions, can be given the status of binding rules of law at the national level that the instruments or provisions become binding, but states have no international law obligation in this respect. With the passing of time, concordant national laws could be said to reflect *opinio juris* and this, in conjunction with general state practice, could subsequently be seen to form the basis for arguing that the soft law provisions have become part of customary international law.⁸³⁶

⁸³⁴ Rautenbach ea "Joint Report" 21.

⁸³⁵ Foreword of the Director-General of the IAEA to the five Codes on the Safety of Nuclear Power Plants dealing with topics such as Governmental Organisation, Siting, Design, Operation, and Quality Assurance.

⁸³⁶ Boustany 1998 *Nuclear Law Bulletin* 41.

6.3.6 Liability for nuclear damage

A final matter to be dealt with in this overview of the IAEA legal framework relates to the topic of nuclear damage and the liability for timely and adequate compensation. Nuclear liability is based on two inter-related principles of nuclear law, namely those of safety and responsibility.⁸³⁷ Two similar provisions contained in the two safety conventions refer specifically to the responsibility of the nuclear operator.⁸³⁸ The responsibility of the operator refers to both the primary technology responsibility of the operator for safety as well as third-party legal liability. The inter-related nature of the relationship between the responsibilities of safety and liability makes it extremely difficult for states to separate their obligation to introduce the regulatory mechanisms to ensure the required level of nuclear safety from their parallel obligation to adopt special legislation on nuclear third-party liability.⁸³⁹

Prior to the Chernobyl accident the international nuclear liability regime consisted of two conventions based on a number of identical basic principles, namely the *Vienna Convention on Civil Liability for Nuclear Damage*, 1963 (Vienna Convention) and the *Paris Convention on Third Party Liability in the Field of Nuclear Energy*, 1960 (Paris Convention). The Vienna Convention was developed under the auspices of the IAEA and was intended to regulate nuclear liability issues on a global scale, while the Paris Convention was a regional instrument adopted by the OECD. The Vienna

⁸³⁷ Boustany 1998 *Nuclear Law Bulletin* 45.

⁸³⁸ Article 9 of the Convention on Nuclear Safety provides: "Each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility"; and Article 21 of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management uses the same drafting with appropriate amendments: "Each Contracting Party shall ensure that prime responsibility for the safety of spent fuel or radioactive waste management rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility." It should be noted that the "prime responsibility of the operator" envisaged here corresponds to the concept of "responsibility" and "liability", which remains in other respects one of the operator's primary duties. This distinction does not, however, affect the analysis which we propose to do of all duties which fall on both the State and the operator in respect of liability of any description. See Boehler 1997 *Nuclear Law Bulletin* 13.

⁸³⁹ Sanctioning the person liable helps to compensate, as far as is possible, for the shortcomings of the safety system and as a means of promoting the effectiveness of this system. There is obviously a close link between compensation and prevention, the former by its dissuasive nature helping to make firms pay closer attention to safety and the prevention of accidents. See Boehler MC "Reflections on Liability and Radiological or Nuclear Accidents: the Accidents at Goiania, Forbach, Three Mile Island and Chernobyl" 1997 *Nuclear Law Bulletin* 13.

Convention and the Paris Convention, while based on the same principles, existed in isolation from each other, a fact which raised a potential problem of the conflict of law.⁸⁴⁰ With a view to ensuring a wider international acceptance and application of the civil liability regimes established by the two conventions, it was eventually concluded that the best solution would be the adoption of a new international instrument. This resulted in the adoption of the *Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention*, 1988 (Joint Protocol).⁸⁴¹

The Joint Protocol integrates the provisions of the Vienna Convention and the Paris Convention, resulting in a system which provides for a mutual extension of liability under the provisions of both the conventions. The Joint Protocol moreover deals with the issue of eliminating conflicts in the simultaneous application of the two conventions by establishing a choice of law rule to determine which of the conventions should apply in respect of the same accident.⁸⁴² In conjunction with the Joint Protocol, two complementary instruments were drafted in order to address inadequacies related specifically to the Vienna civil liability regime, namely the *Protocol to Amend the Vienna Convention on Liability for Nuclear Damage*, 1997 (Vienna Protocol)⁸⁴³ and the *Convention on Supplementary Compensation for Nuclear Damage*, 1997 (CSC).⁸⁴⁴ The Vienna Protocol extends the coverage of the Vienna Convention to include nuclear damage suffered in non-contracting states; the types of damage for which coverage is provided; the amount of coverage; and enhanced jurisdiction provisions. The CSC on the other hand aims at establishing a global liability regime in which all states, irrespective of whether or not they are party to the Vienna or Paris Conventions, may participate. Despite the adoption of these instruments, remaining concerns with regard to a comprehensive liability regime have led to the establishment of the International Expert Group on Nuclear Liability (INLEX) by the IAEA in 2003. The INLEX has as its over-arching objective, the finalisation of explanatory texts which include an overview of the revised IAEA

⁸⁴⁰ Desart 2005 Nuclear Law Bulletin 216.

⁸⁴¹ IAEA document INFCIRC/402. Hereinafter referred to as the Joint Protocol.

⁸⁴² Rautenbach "Joint Report" 24.

⁸⁴³ IAEA document INFCIRC/566.

⁸⁴⁴ IAEA document INFCIRC/567.

nuclear liability regime, in order to aid the understanding and authoritative interpretation of the regime.⁸⁴⁵

While the IAEA's ILF constitutes the basic outline of what is to be considered an internationally acceptable nuclear legal framework, certain challenges regarding the establishment and practical implementation of such a framework still remain. Countries and/or regions with under-developed or non-existent nuclear energy sectors are especially prone to experiencing these challenges and in most instances require assistance. Considering that the African continent currently has only two operational NPPs and ten research reactors, the IAEA's assistance programmes are especially relevant, specifically with regard to the initial phase of launching a nuclear power programme. This phase pertains almost exclusively to the formulation of a nuclear legal framework, and in a region with an under-developed nuclear energy sector this is an activity which necessitates assistance from a competent international body such as the IAEA. In this regard the IAEA offers technical and legal assistance to developing and under-developed regions looking to launch a nuclear power programme.

6.4 Launching a nuclear power programme and implementing a nuclear legal framework in a developing region

For a state or region considering the introduction or expansion of nuclear power, it is essential that it should develop a comprehensive strategy to assess its energy needs and that it should understand the potential role, appropriateness, viability and commitments associated with nuclear energy in the context of its plans for socio-economic development. An essential task is to assess the implications of installing an NPP in the national grid network, recognising that normally no single nuclear unit

⁸⁴⁵ In this regard, see the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts – A comprehensive study of the IAEA's nuclear liability regime by the INLEX to aid the understanding and authoritative interpretation of that regime available at www.iaea.org/About/Policy/GC/GC48/Documents/gc48inf-5expltext.pdf [date of use 25 November 2012].

will account for more than 10% of the installed capacity of the entire network. In addition, possibilities for regional and international cooperation should be assessed. These issues are especially relevant to the African energy situation, considering that the greater portion of the region has no or a very poorly developed national energy infrastructure and that regional cooperation is essential to meeting the objective of coordinated regional nuclear energy expansion.

Launching a nuclear power programme is a major undertaking requiring careful planning, preparation and investment in a sustainable infrastructure that provides legal regulatory, technological, human and industrial support to ensure that the nuclear material is used exclusively for peaceful purposes and in a safe and secure manner.⁸⁴⁶ For a state or region with an under-developed or non-existent nuclear infrastructure, the decision to launch a nuclear power programme requires long-term commitments throughout the periods of planning, operation, decommissioning and waste management.⁸⁴⁷ In general there are three stages in implementing a nuclear power programme: (a) consideration before a decision to launch a NPP is taken; (b) preparatory work for the construction of an NPP after a policy decision has been taken; and (c) activities to implement a first NPP.⁸⁴⁸ As stated previously, the current status of nuclear energy in most AU member states leads to the deduction that the continent as a whole is in the first phase of implementing a nuclear power programme. The key activities of this first phase include recognition of the obligations and commitments associated with a nuclear power programme, both at the national and the international level. This necessitates the development of a comprehensive nuclear legal framework;⁸⁴⁹ the establishment and maintenance of an effective regulatory system; adequate financial and technical resources for the nuclear life cycle;⁸⁵⁰ and transparency in the decision-making processes.⁸⁵¹ The

⁸⁴⁶ IAEA "Considerations" 2007 1.

⁸⁴⁷ The global average for the time-lapse between an initial policy decision by an under-developed state to consider nuclear power and the start of the operation of its first NPP will be at least 10 – 15 years. See IAEA "Considerations" 2007 7.

⁸⁴⁸ IAEA "Considerations" 2007 3.

⁸⁴⁹ A comprehensive nuclear legal framework covers all aspects of the peaceful uses of nuclear energy: safety, security, safeguards and liability, in addition to the commercial issues related to the use of nuclear material.

⁸⁵⁰ The available financial resources must cover the construction, sustained safe operation and decommissioning of the NPP, as well as radioactive waste management. In conjunction with

establishment of an effective, competent and independent regulatory body should take into consideration the country's existing situation with respect to regulatory control. For example, most states already have arrangements for exercising the regulatory oversight of nuclear facilities and activities. Where this is so, the need for additional staff and their specific competencies should be determined. In states where the regulatory body consists of more than one authority (e.g. radiation protection, nuclear safety, environmental protection, conventional health and safety), effective arrangements should be made to ensure that regulatory functions and responsibilities related to the nuclear power programme are properly identified, discharged and coordinated. The authorisation process and the basis for granting an authorization for siting, design, commissioning, operation, and discharges to the environment should be defined. The regulatory body needs to develop the capabilities to plan and implement the review and safety assessment activities of the proposed facility throughout its life.

The nuclear legal framework, as it is envisaged by the IAEA, must include legislation on key concepts such as nuclear safety, security, safeguards and liability for nuclear damage based on the normative framework reflected by the instruments comprising the international nuclear legal framework. A predominantly underdeveloped region such as the African continent needs specific assistance in achieving the objective of formulating and implementing a nuclear legal framework. The IAEA offers assistance in ensuring that practical steps towards the realisation of the provisions of relevant international measures are facilitated in the form of its legislative assistance and technical cooperation programmes.

this, programmes for all technical aspects of operation, decommissioning and radioactive waste management need to be developed.

⁸⁵¹ The decision to launch a nuclear power programme and the reasons for such a decision must be communicated in a transparent fashion to the public as well as to neighboring states. See IAEA "Considerations" 2007 7 - 11.

6.4.1 *The IAEA's legislative assistance programme and the technical cooperation programme*

The legislative assistance programme (LAP) assists in the establishment and development of a comprehensive corresponding national (regional) legal framework governing the safe and peaceful uses of nuclear energy that *inter alia* implements the international legal instruments which the member state has ratified.⁸⁵² The main objectives of the LAP can be summarised as creating awareness in member states of the international instruments in the nuclear field; assisting member states in complying with their international obligations and commitments; assisting member states in establishing national legal frameworks governing the safe and peaceful uses of nuclear energy; and transferring relevant knowledge to member states.⁸⁵³ The achievement of these objectives will culminate in the formulation of national nuclear legislation which reflects the normative framework underlying international nuclear law. The programme is implemented through national and regional training courses and seminars, bilateral assistance in drafting national laws, the training of individuals, and developing reference material. The AFRA is a practical example of the assistance provided by the LAP. This bilateral agreement between the IAEA and AU member states will be elaborated upon in subsequent sections pertaining to the current African nuclear legal framework.

The process of developing legislation cannot, however, be separated from its implementation. In order to ensure the implementation and review of legislation, an effective, competent and independent regulatory body should be established.⁸⁵⁴ To ensure the practical implementation of the legal frameworks facilitated through the activities of the LAP, the IAEA also provides for technical assistance or technical cooperation. In order to accelerate and enlarge the contribution of atomic energy to global peace, health and prosperity, the IAEA contributes to sustainable development goals through the development and transfer of nuclear science and

⁸⁵² Rautenbach ea "Joint Report" 30.

⁸⁵³ See www.ola.iaea.org/ola/legislative-assistance.html [date of use 25 November 2012].

⁸⁵⁴ See note 169 above.

technology through its Technical Cooperation Programme (TCP).⁸⁵⁵ In terms of the Technical Cooperation Strategy 1997 (TCS), its strategic goal is to increasingly promote tangible socio-economic benefit by contributing directly in a cost-effective manner to the achievement of the major sustainable development priorities of each country or region.⁸⁵⁶

The IAEA supports the application of a broad array of nuclear and related technologies that can assist member states in meeting development needs⁸⁵⁷ but also recognises the fact that member states with an under-developed nuclear infrastructure need technical cooperation in establishing the relevant legal and technical infrastructure.⁸⁵⁸ At this point the question arises of whether the IAEA has the authority to deny technical and/or legal assistance to a member state, for instance Iran, suspected of applying nuclear technology for non-peaceful uses. The short answer to this question is “yes”, especially considering the decision in 2006 to deny the Iranian government’s request for technical cooperation in building a nuclear reactor. The decision was based on the fact that the TCP serves as the practical implementation mechanism of article IV of the NPT and of article III of the IAEA’s founding statute. These provisions call on the agency to promote the application of atomic energy for peaceful purposes, to make provisions for materials, services, equipment, and facilities, and to coordinate the exchange of scientific and technical information on the peaceful uses of nuclear energy.⁸⁵⁹ The IAEA also plays the crucial role of ensuring that cooperation granted under NPT article IV is not misused to help develop nuclear weapons. Article IV asserts that countries are eligible to receive nuclear assistance as long as they are “in conformity” with articles I and II of the NPT. This means that nuclear-weapon states must agree not to provide assistance to non-nuclear-weapon states on the manufacture of nuclear weapons

⁸⁵⁵ IAEA Technical Cooperation Strategy 2002 1.

⁸⁵⁶ IAEA Revised Guiding Principles 1979 1.

⁸⁵⁷ Development goals include human health, agricultural productivity and food security, water resource management, environmental protection, physical and chemical applications and sustainable energy development. IAEA Technical Cooperation Strategy 2002 2.

⁸⁵⁸ The eligibility of a member state for technical assistance is governed by the provisions and criteria of the UNDPs.

⁸⁵⁹ IAEA 2011 www.iaea.org/Publications/Booklets/Tc90s/chpone.html [date of use 25 November 2012].

and explosives and the non-nuclear-weapon states must agree not to receive the transfer or assistance in the development of nuclear devices.

In order to reach the strategic goal of the TCS the IAEA works closely with member states to select projects focused on resolving priority development problems and then applies either Model Projects,⁸⁶⁰ Country Programme Frameworks,⁸⁶¹ and/or Thematic Planning⁸⁶² as tools of implementation.⁸⁶³ Another important tool in ensuring development through technical cooperation in the field of nuclear energy is the conclusion of partnerships between developed and developing countries.⁸⁶⁴ The AEEP between the EU and the AU is an excellent example of these cooperation partnerships. These partnerships have extensive financial,⁸⁶⁵ strategic⁸⁶⁶ and technical advantages⁸⁶⁷ for all parties involved.

⁸⁶⁰ The Model Project concept introduced in the 1997 Technical Cooperation Strategy indicated that demand-driven, needs-based projects were more likely to produce results. Therefore, by linking a project to a member state's development priorities and securing the government's commitment, the probability increased that sustained benefits would be delivered. The most important factor in such a project is strong government commitment and support to the project. See IAEA Technical Cooperation Strategy 2002 4.

⁸⁶¹ A Country Programme Framework as a planning tool improves the project selection process by placing it in the context of national priorities. These frameworks assist authorities to identify the problems to be addressed with nuclear technologies, to outline the results expected in a given time-frame and to take ownership of the programme. See IAEA Technical Cooperation Strategy 2002 5.

⁸⁶² Thematic Planning is the process by which specific problems are identified for which the transfer of nuclear technology through technical cooperation can be expected to result in the making of a significant and sustainable impact. See IAEA Technical Cooperation Strategy 2002 5.

⁸⁶³ IAEA Technical Cooperation Strategy 2002 4.

⁸⁶⁴ IAEA Technical Cooperation Strategy 2002 6.

⁸⁶⁵ Parallel funding facilitated through partnerships among member states provides a cost-effective means of achieving greater impact in developing countries. See IAEA Technical Cooperation Strategy 2002 6.

⁸⁶⁶ Working with well-established organizations in relevant fields, in an area where nuclear techniques have an advantage, can add credibility with governments and end users and can raise the profile of the project. A heightened profile will also help make decision makers aware of the contributions that nuclear technologies can make to development plans. See IAEA Technical Cooperation Strategy 2002 6.

⁸⁶⁷ Technical partnerships often achieve synergy by combining complementary nuclear and non-nuclear technologies. Transferring nuclear technology might lead to development in other programmes. For instance the application of radioactive materials during medical activities would lead to the training of doctors. See IAEA Technical Cooperation Strategy 2002 6.

6.6 Conclusion

At the AU level, the renewed attention being paid to nuclear energy is based on diversifying the continent's energy mix and increasing access to modern energy in order to ultimately promote the sustainable development of member states. In accordance with the mandate contained in the Abuja Treaty and the CAFREC, nuclear expansion at the AU level should be regulated in terms of coordinated regional law and policy based on regional cooperation.⁸⁶⁸ As a point of departure, the author proposed that the existing ILF governing the safe application of nuclear technology in electricity generation be used as reference point for AU regulatory efforts.

The instruments comprising the IAEA legal framework resort under what is generally referred to as nuclear law.⁸⁶⁹ With reference to the elements of its definition and general objective, nuclear law relates to the specific legal norms providing the legal framework for regulating nuclear activities (including the generation of electricity) in such a manner as to adequately protect individuals, property and the environment.⁸⁷⁰ Nuclear law, as has been indicated, finds its normative basis in the principles of nuclear law⁸⁷¹ as well as the recently-developed 3S concept.⁸⁷² Due to the trans-boundary nature of the impacts of nuclear activities, nuclear law is international in nature and the instruments comprising its legal framework must therefore be applied to regional or national law and policy in order that they may achieve the greatest measure of harmonisation.

The IAEA legal framework as it currently exists is the product of more than fifty years of international cooperative efforts geared towards the establishment of a global nuclear regime based on the principles of nuclear law and the 3S concept.⁸⁷³

⁸⁶⁸ See paragraph 2.6.4 at note 210 above.

⁸⁶⁹ See paragraph 6.2 above.

⁸⁷⁰ See paragraph 6.2 at note 771 above.

⁸⁷¹ For an overview of these principles, see paragraph 6.2.2 above.

⁸⁷² See note 777 above.

⁸⁷³ See paragraph 6.3 above.

Generally regarded as the impetus for the genesis of the international nuclear legal framework, the Chernobyl accident in 1986 underlined major deficiencies in the international legal and regulatory norms established to govern the safe and peaceful use of nuclear energy. The accident set in motion intense international cooperation on establishing an international nuclear regime under the auspices of the IAEA. In essence the IAEA legal framework consists of binding and non-binding international legal instruments such as conventions and codes of conduct which cover various aspects of nuclear law. The binding legal instruments contained in the IAEA legal framework⁸⁷⁴ as well as the non-binding instruments⁸⁷⁵ provide an extensive legal framework taking into consideration the three most important components of nuclear law, namely safety, security and safeguards.

The formulation and implementation of the envisaged African nuclear law and policy will depend upon intense assistance from the IAEA. In addition to its legal framework, the IAEA furthermore provides practical legal and technical support to regions that are embarking upon either establishing a nuclear energy programme or expanding on existing nuclear energy infrastructure.⁸⁷⁶ The IAEA's LAP is especially relevant in this regard as its main objective is to assist countries/regions in the establishment and development of a comprehensive legal framework governing the safe and peaceful uses of nuclear energy.⁸⁷⁷ Closely related to the LAP is the TCP, which has the strategic goal of promoting sustainable development by means of technical cooperation on nuclear technologies. The TCP aims to ensure that nuclear technologies are transferred and implemented in a sustainable fashion and in accordance with the IAEA legal framework in order to ensure tangible results with

⁸⁷⁴ These instruments include: the *Convention on Early Notification of a Nuclear Accident*, 1986; the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*, 1986; the *Convention on Physical Protection of Nuclear Material*, 1987 and its Amendment, 2005; the *Convention on Nuclear Security*, 1994; the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, 1997; the *Vienna Convention on Civil Liability for Nuclear Damage*, 1963; the *Paris Convention on Third Party Liability in the Field of Nuclear Energy*, 1960; and the *Joint Protocol on Relating to the Application of the Vienna Convention and the Paris Convention*, 1988. See paragraphs 6.4.1, 6.4.2, 6.4.3, 6.4.4 and 6.4.6 above.

⁸⁷⁵ Most notably: the *Code of Conduct on the Safety and Security of Radioactive Sources*, 2000 and the *Code of Conduct on the Safety of Research Reactors*, 2004. See paragraph 6.4.5 above.

⁸⁷⁶ See paragraph 6.4 above.

⁸⁷⁷ See paragraph 6.4.1 at notes 864 and 865 above.

reference to economic and social development. In short, the activities of the LAP and the TCP are geared towards promoting the sustainable development of countries and/or regions by means of knowledge and technology transfer.⁸⁷⁸ The legal and technical assistance offered by the IAEA has found practical implementation at the AU regional level in the form of the AFRA, which is a bilateral agreement between the IAEA and AU member states.

In summation, it is submitted that the regulation of future African nuclear energy expansion should undoubtedly take place in accordance with a coordinated regional nuclear legal framework based on the instruments comprising the IAEA nuclear legal framework. This regional nuclear legal framework must be based on regional cooperation regarding the manner in which the international legal instrument comprising the ILF should be incorporated into the AU legal context. In addition to regional cooperation, the legislative assistance provided by the IAEA in terms of its LAP should prove invaluable in ensuring an African nuclear legal framework which is internationally acceptable. It cannot be overstated that the establishment of an internationally acceptable regional nuclear legal framework is but one aspect of ensuring the promotion of the sustainable development of Africa by means of improved access to modern energy. Without the practical implementation of the provisions contained in the legal instruments comprising a legal framework, the instruments and indeed the legal framework itself become redundant. Considering that the African continent as a whole is one of the least-developed regions with regard to modern energy generation and consumption, it is suggested that the AU would benefit greatly from further technical assistance in implementing its nuclear legal framework in a sustainable fashion. This assistance should stem from the TCP and the subsequent implementation of the regional nuclear legal framework at the AU level should take place in accordance with the tools of implementation prescribed by the IAEA.

⁸⁷⁸ See paragraph 6.4.1 at notes 867 and 868 above.

7 Conclusion

7.1 Overview of the problem statement, hypotheses, assumptions and research question

In terms of the UN Charter, international cooperation must be geared towards solving problems of economic, social, cultural or humanitarian nature while taking human rights and other fundamental freedoms into consideration. These provisions must be read together with those contained in article 55 (a) and (c) of the UN Charter which states that one of the goals of international cooperation must be that of economic and social progress and development. In order to achieve the stated goals, article 2(1) provides that a member state must "take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realisation of the rights recognised in the present Covenant."⁸⁷⁹ At the African Union level, the Charter of the (then) OAU referred to "freedom, equality, justice and dignity" as the essential objectives in realising human rights in Africa. The Banjul Charter states that cooperation among member states must be geared towards the fulfilment of the right to development. Development in the context of the Banjul Charter must be seen to include social, cultural and economic development, coupled with the enjoyment of the common heritage of mankind.

In terms of the provisions of the Constitutive Act, the main objective of member states must be to promote sustainable development at the economic, social and cultural levels.⁸⁸⁰ This objective will be achieved only through the integration of African economies; through the promotion of cooperation among member states in all fields of human activity in order to raise the living standards of African peoples; by coordinating and harmonising policies between existing and future RECs; and by

⁸⁷⁹ See paragraph 1.1.
⁸⁸⁰ See paragraph 1.1.

promoting research in all fields, particularly science and technology.⁸⁸¹ NEPAD states as its mission the eradication of poverty, sustainable growth and development, and the promotion of Africa's role in the global economy. As part of this general mission, NEPAD is concerned with the provision of certain essential public goods (of which energy is one) through regional development programmes on regional and sub-regional levels.⁸⁸² The important role energy plays in the development process is evident, taking into account that it is identified as one of the critical sectoral priorities specified by the NEPAD. The NEPAD recommends that African countries should focus on increasing access to reliable and affordable commercial energy, reversing environmental degradation associated with the heavy reliance on traditional fuels in rural areas, and stimulating a stronger focus on sustainable energy sources. Furthermore it is stated that enhanced regional development and economic integration which will lead to achieving the objectives regarding sectoral priorities hinges upon increased interaction and cooperation among sub-regional economic groupings.⁸⁸³ The AEC reaffirms the objective of sustainable development through regional cooperation in terms of the provisions of the Abuja Treaty, which states as one of its objectives the promotion of economic, social and cultural development of the continent through regional cooperation. Energy is identified as an important role -player in facilitating development throughout the region, and attention must be paid to increasing cooperation among member states on harmonising policies in the fields of new and renewable energy sources.⁸⁸⁴

In terms of development, the African continent's situation is critical. Of the 49 countries on the UN LDC list, 33 are African countries. These countries are characterised by the structural weaknesses of their economic, institutional and human resources, which in turn lead to high levels of poverty - an indicator of the non-achievement of the MDGs.⁸⁸⁵ Although access to energy is not explicitly identified as an MDG, the provision of modern energy services is critical in ensuring sustainable development. The most common energy challenge faced by African LDCs and specifically those LDCs in SSA is extremely low levels of access to

⁸⁸¹ See paragraph 1.6 above.

⁸⁸² See paragraph 1.1 above.

⁸⁸³ See paragraph 2.4 above.

⁸⁸⁴ See paragraph 1.6.

⁸⁸⁵ See paragraphs 1.2, 1.3, 2.1, 2.2.2 and 2.2.3 above.

reliable modern energy sources.⁸⁸⁶ Without access to modern fuels and electricity it is highly unlikely that any of the objectives of the MDGs will be achieved, and the promotion of sustainable development will also be severely hampered. The current African energy situation clearly falls under the description of energy poverty, the effect of which is the non-achievement of the objective of promoting sustainable development.⁸⁸⁷ Access to energy sources promoting sustainable development therefore seems to be the pivotal point around which the solution to the energy poverty crisis in Africa revolves and should be considered the primary AU normative response to energy poverty. This response should be embodied in coordinated law and policy based on regional cooperation. Nuclear energy is included in the list of energy sources which are to form part of a diversified African energy mix geared towards the promotion of sustainable development. Increased access to nuclear energy should accordingly be regulated in terms of a coordinated AU nuclear legal framework.⁸⁸⁸ Which leads to the following research question: what should be included in a coordinated legal framework aimed at the regulation of increased access to nuclear energy pursuant to the goal of promoting sustainable development at the AU level?

In proposing an answer to the stated research question, the following hypotheses and assumptions provided the parameters within which the author's research efforts would be contained. Broadly, the assumptions relate to the detrimental effects of energy poverty on the development of the African continent; the critically important role of increased access to modern energy sources in mitigating this situation; and the need for legal frameworks based on regional cooperation in regulating increased access to modern energy. The hypotheses include the assumption that the implementation or expansion of nuclear energy in Africa will lead to improved access to sustainable energy services. Furthermore, improved access to nuclear energy will contribute towards the eradication of energy poverty in Africa by contributing towards the attainment of the MDGs and sustainable development goals.⁸⁸⁹ The regulation of increased access to nuclear energy in Africa necessitates regional cooperation on the formulation of a coordinated regional nuclear legal framework. The legal and

⁸⁸⁶ See paragraph 2.2 above.

⁸⁸⁷ See paragraph 2.2 above.

⁸⁸⁸ See paragraph 2.6.4 at note 210 above.

⁸⁸⁹ See paragraph 1.7 above.

regulatory frameworks regarding the peaceful use of nuclear energy at regional, sub-regional and national levels must adhere to all relevant provisions of the IAEA.

7.2 Summary of the analysis

This thesis sought to identify the components of a coordinated AU nuclear legal framework aimed at regulating the implementation or expansion of nuclear energy in Africa in such a manner as to promote sustainable development. Analyses were to be based on the following themes:

- the effect of the lack of access to modern energy on the promotion of sustainable development in Africa, and increased access to modern energy as a primary AU normative response;
- the nature of the relationship between sustainable development, the MDGs and human rights in establishing a holistic and integrated conceptualisation of sustainable development;
- international and regional human rights as the legal basis for the AU normative response to energy poverty;
- regional cooperation and its role in facilitating the formulation of coordinated AU legal frameworks pertaining to matters of common concern, including increased access to modern energy sources; and
- nuclear energy as a modern energy source included in a diversified African energy mix focused on sustainable energy generation.

In examining the issues listed above, Chapter two of this thesis provided an in-depth analysis of energy poverty which highlighted the various negative impacts it has on social, environmental and economic development. It was established that energy poverty manifests as either a lack of access to modern energy sources (specifically electricity) or heavy reliance on the traditional uses of biomass as the primary energy source, and in most instances both.⁸⁹⁰ A lack of access to modern energy is listed as one of the non-income dimensions of poverty by the UNDP, mainly due to the

⁸⁹⁰ See paragraph 2.2.2 and 2.2.3 above.

detrimental impact it has on the achievement of the MDGs, especially on the eradication of extreme poverty.⁸⁹¹ Against the backdrop of the major challenges to increasing access to modern energy in Africa, a list of elements to be included in the AU normative response to energy poverty was identified.⁸⁹² These include supportive regulatory policies, the integration of climate change considerations into the regional energy expansion initiative, the vital importance of international assistance and cooperation, and coordinated regional action based on coordinated regional law and policy.⁸⁹³ As nuclear energy is included in the list of energy sources to be included in regional action towards sustainable development, regional action towards increased nuclear energy access should take place in terms of coordinated law and policy.⁸⁹⁴ Finally, sustainability factors which should inform AU law and policy on increased access to nuclear energy were identified by means of a list of social, economic and technical sustainability indicators.⁸⁹⁵

Chapter three contained a theoretical discussion of the concept of sustainable development and its relation to other development initiatives – particularly the MDGs and human rights. Sustainable development was identified as falling within the ambit of soft law but its potential role in international law-making was highlighted with reference to the normative developments it has stimulated.⁸⁹⁶ An analysis of the contributions of international conferences to the conceptualisation of sustainable development in the form of non-binding declarations led to deconstructing sustainable development as a normative construct.⁸⁹⁷ This provided the basis for an overview of the principles of international law pertaining to sustainable development law, which comprises the normative framework of sustainable development.⁸⁹⁸ The chapter concluded with a discussion on the future of sustainable development in contemporary international law. This relates primarily to the implementation of sustainable development. It was concluded that genuine implementation is not

⁸⁹¹ See paragraph 2.3 and 2.4 above.

⁸⁹² See paragraph 2.6 above.

⁸⁹³ See paragraph 2.7 above.

⁸⁹⁴ See paragraph 2.10 above.

⁸⁹⁵ See paragraphs 2.11 and 2.12 above.

⁸⁹⁶ See paragraph 3.2 above.

⁸⁹⁷ See paragraph 3.3 above.

⁸⁹⁸ See paragraphs 3.4 and 3.5 above.

possible mainly due to economic considerations becoming increasingly important in relation to environmental and social concerns. The synergy between economic, social and environmental development as prescribed in literature about sustainable development, including the pronouncements of conferences, increasingly appears to be fictitious, and a new method for implementation is needed.⁸⁹⁹

Chapter four dealt with two main these. The first was that the pursuance of human rights would be an appropriate and effective method for implementing the sustainable development agenda in Africa, and the second was that a right to energy as an independent AU human right should be derived from explicit regional human rights. After having established a mutually inclusive relationship between the MDGs and sustainable development in Chapter three, the nature of the relationship between the MDGs and human rights was investigated. It was concluded that the nature of this relationship ranged from significantly overlap and mutually reinforcement to their being fully compatible and complementary.⁹⁰⁰ The link between sustainable development, the MDGs and human rights provided the conceptual basis for concluding that existing human rights provide the legal basis for the promotion of sustainable development in Africa. The notion of human rights as an being indivisible set of economic, social, cultural, political and social rights is expressed in the right to development, which exists at the international and regional level.⁹⁰¹ Contextualising energy poverty as an overt challenge to the realisation of the right to development would provide the foundation for an argument in favour of formulating a right to energy as an independent AU human right.⁹⁰² The conceptual basis for this argument is that the full realisation of the right to development read with the right to a generally satisfactory environment favourable to development depends upon implicit human rights. In reaching a conclusion, the author applied the CESCR's methodology to read the right to water, by means of a teleological approach, into the interpretation of articles 11 and 12 of the ICESCR.⁹⁰³ Certain rights, though not expressly mentioned in the texts of human rights instruments, may

⁸⁹⁹ See paragraph 3.6 above.

⁹⁰⁰ See paragraph 4.2 above.

⁹⁰¹ See paragraphs 4.3 and 4.4 above.

⁹⁰² See paragraph 4.5 above.

⁹⁰³ See paragraph 4.6 above.

be read in, in order to ensure the full realisation of explicit rights, if it can be indicated that the omitted right is demonstrably indispensable to the realisation of an explicit right. This approach of reading in also found application in a number of ACPHR Communications, most notably the SERAC and Endorois cases.⁹⁰⁴

Chapter five examined the role of coordinated regional law and policy in facilitating a regional approach to increased access to modern energy. Reading together the provisions of various AU legal instruments it was concluded that the objective of promoting sustainable development in Africa depends upon regional economic integration based on cooperation in all fields of human activity aimed at coordinating and harmonising policies between member states and existing and future RECs.⁹⁰⁵ An analysis of the topic of regional integration at the AU level led to the conclusion that regional integration efforts in Africa are less than successful. The reasons for this situation include the use of a European model for market integration which is not suited to the African context, multiple memberships of RECs, and the nature of the relationship among the AU, the RECs and the AEC.⁹⁰⁶ As was established in Chapter two, the collective efforts of AU member states and/or RECs must be focused on the formulation of coordinated regional and/or sub-regional policies and programmes on increased access to modern energy sources promoting sustainable development. The successes of the SADC, the EAC and the ECOWAS in following coordinated approaches to increased access to modern energy were highlighted by a discussion of their respective initiatives aimed at achieving increased access.⁹⁰⁷ Cognisant of the AU mandate for including nuclear energy into the list of modern energy sources to which access should be increased, the author described the current status of the AU nuclear legal framework.⁹⁰⁸ From this discussion, the conclusion was reached that further action towards the implementation or expansion of nuclear energy in Africa need to take place in accordance with the provisions of the IAEA legal framework.

⁹⁰⁴ See paragraph 4.9 above.

⁹⁰⁵ See paragraph 5.1 above.

⁹⁰⁶ See paragraph 5.4 above.

⁹⁰⁷ See paragraph 5.4 above.

⁹⁰⁸ See paragraph 5.5 above.

Chapter six constitutes the author's answer to the research question stated at the outset of this thesis. A discussion of international nuclear law and the principles comprising its normative framework led to the conclusion that those principles if adopted would regulate nuclear energy in such a manner as to adequately protect individuals, property and the environment.⁹⁰⁹ It was concluded that they pertain to the three primary concepts of nuclear law, namely safety, security and safeguards – the so-called 3S concept. The current IAEA legal framework is a testament to intense international cooperation spanning a period of more than fifty years, and it consists of legally binding and non-binding instruments on these three components of nuclear law. Alongside its legal framework, the IAEA offers technical and legal assistance to countries or regions looking to establish a nuclear power programme under its LAP and TCP.⁹¹⁰ The IAEA legal framework embodies an international nuclear legal framework and it was concluded that a coordinated AU nuclear legal framework should contain the IAEA instruments.

7.3 Overview of the main concepts

For the purposes of this thesis a number of key concepts central to answering the research question were discussed and in some instances specific definitions were afforded. The main concepts included:

7.3.1 Energy Poverty

In reaching a definition of energy poverty the author relied on the interpretation of the concept by the UNDP and the IEA. In its 2010 Report the UNDP acknowledges the multidimensional nature of poverty and includes a number of non-income indicators of poverty such as energy. The two energy indicators related to the non-income dimension of lack of access to energy are electricity and cooking fuels. In the

⁹⁰⁹ See paragraph 6.2 above.

⁹¹⁰ For an overview of the instruments comprising the IAEA legal framework as well as a discussion of the LAP and TCP, see paragraphs 6.3 and 6.4 above.

context of multi-dimensional poverty, the UNDP defines energy poverty as the "inability to cook with modern cooking fuels and the lack of a bare minimum of electric lighting to read or for other household and productive activities at sunset."⁹¹¹ The definition also contains reference to energy access and traditional biomass as indicators of energy poverty. According to the IEA, energy poverty is a situation characterised by a lack of access to electricity on the one hand and the reliance on traditional biomass fuels for cooking on the other.⁹¹² Relying on the definitions of energy poverty provided by the UNDP and the IEA, the author chose to define energy poverty as the lack of access to modern energy sources and the prevalence of a heavy reliance on traditional biomass as the primary energy source.

7.3.2 *Energy access*

Defining energy access proved challenging, mainly due to the fact that no consensus exists as to what exactly the phrase means. This is the case as different levels of development invariably lead to different energy needs and, moreover, different levels of access to energy. The AGECC identifies three incremental levels of energy access. These are: energy for basic human needs; energy for productive uses; and energy for the needs of a modern society. The AGECC accordingly defines universal energy access as "access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses".⁹¹³ The practical application of this definition would entail providing affordable access to electricity and modern fuels and technologies for cooking and heating, to improve productivity in the fields of agriculture, commerce, industry and transport; and for individual use.⁹¹⁴ The provision of access to these energy sources/services must be undertaken with the aim of promoting economic development and growth that positively affects livelihoods. In other words, it must promote sustainable development.

⁹¹¹ See paragraph 2.2 above.

⁹¹² See paragraph 2.2 above.

⁹¹³ See paragraph 2.2.3.1 above.

⁹¹⁴ See paragraph 2.2.3.1 above.

7.3.3 *Increased energy access*

Increased access to modern energy sources features strongly in a number of international initiatives' objectives as a means to promote the achievement of the MDGs and the promotion of sustainable development. To this end, the UMEAC and the UNSEI expressly refer to the important role of achieving universal access to modern energy and the promotion of sustainable development. In order for the global energy access situation to be considered as being on course for the achievement of the MDG of eradicating poverty by 2015, no more than one billion people must be without access to electricity by 2015.⁹¹⁵ In order to achieve its modern energy access target by 2015, the UMEAC estimates that 395 million people need to be provided with electricity. The UNSEI Resolution also acknowledges the global scale of the action needed to address the issue of modern energy services for all, and in terms of its GAA proposes that global access to sustainable energy be established by 2030.⁹¹⁶ The emphasis placed on establishing global access to modern energy sources as a means to promote sustainable development and the achievement of the MDGs led the author to conclude that increased modern energy access should also enjoy the attention of AU policy-makers. The recommendation was made that increased access to modern energy sources capable of promoting sustainable development should be the primary AU normative response to the challenge of energy poverty in Africa.

7.3.4 *Sustainable energy*

While the UNSEI states as its primary objective the provision of global access to sustainable energy, it does not contain any clear statement of what the concept of sustainable energy indeed entails. The nearest thing to a definition of sustainable energy contained in the literature is to be found in the UN Energy 2005 Report, which refers to a set of criteria for sustainable energy. According to the Report, to qualify as an energy source capable of facilitating the promotion of sustainable

⁹¹⁵ See paragraph 2.4 and 2.5 above.

⁹¹⁶ See paragraph 2.5 above.

development, the energy source/service must be reliable, affordable, economically viable, socially acceptable and environmentally sound.⁹¹⁷ Relying on these criteria as well as the traditional three-tiered interpretation of sustainable development and the sustainable development principle of equity, the author put forward the following definition of sustainable energy: Sustainable energy is any modern energy source that mitigates environmental impacts, fosters economic growth and stimulates the social well-being of the current and future generations.⁹¹⁸

7.3.5 *Right to energy*

The teleological approach to interpreting certain socio-economic rights contained in the ICESCR as applied by the CESCR in its General Comment 15 provided the conceptual basis for arguing in favour of formulating a right to energy at the AU level.⁹¹⁹ The CESCR in this regard interpreted the right to an adequate standard of living and the right to the enjoyment of the highest attainable standard of physical and mental health as contained in articles 11 and 12 of the ICESCR to include other implicit rights. The use of the word “including” in article 11 was interpreted as meaning that the list of rights contained in the ICESCR was not exhaustive and that other rights congruent to articles 11 and 12 could be read in. In essence, the CESCR approach holds that the realisation of existing human rights is, in some instances, dependent upon the formulation and subsequent realisation of implicit rights.⁹²⁰ It is therefore possible to derive human rights from existing human rights and the right so derived will find its legal status in the right(s) it was derived from. This interpretation was followed by the ACHPR in the SERAC and Endorois cases to indicate that explicitly listed AU human rights should not be considered as exhaustive and that the reading in of implicit rights essential to their realisation is often necessary.⁹²¹

⁹¹⁷ See paragraph 4.10 above.

⁹¹⁸ See paragraph 4.10 above.

⁹¹⁹ See paragraph 4.8.1 above.

⁹²⁰ See paragraph 4.8.1 above.

⁹²¹ See paragraph 4.8.1 above.

The author recommends that the interpretation of the CESCRC as applied by the ACHPR in reaching its decisions in the above-mentioned cases should be followed in deriving a right to energy. In this regard, the right to development and the right to a generally satisfactory environment favourable to development contained in articles 22 and 24 of the Banjul Charter should be interpreted so as to include an implicit right to energy. The realisation of the rights contained in articles 22 and 24 should be interpreted as being dependent upon the realisation of the right to energy derived from them.⁹²² It is concluded that a right to energy so derived from existing AU human rights should be considered an independent AU human right. The fulfilment of both of these rights would culminate in the protection and promotion of human dignity and furthermore serve to promote the sustainable development of the African continent.

7.3.6 Coordinated legal framework

The Constitutive Act, the Abuja Treaty and the RECs Protocol recognise the importance of regional cooperation among member states and RECs on the formulation of coordinated law and policy on areas of common interest.⁹²³ The formulation of coordinated law and policy is included as a method for facilitating regional integration in Africa and achieving the objective of promoting sustainable development. Various sub-regional initiatives aimed at increased access to modern energy already exist, including initiatives at the SADC, the EAC and the ECOWAS level.⁹²⁴ Energy and the increased access thereto are included as an area of common interest among AU member states. Furthermore, nuclear energy is one of the energy sources to be included in a diversified African energy mix aimed at sustainable generation.⁹²⁵ The author is of the opinion that a regional approach towards increasing access to nuclear energy is the most suitable to the African context. It is concluded that the AU normative response of increasing access to

⁹²² See paragraph 4.7 above.

⁹²³ See paragraph 5.1 above.

⁹²⁴ For an overview of these initiatives see paragraphs 5.5.1 – 5.5.3 above.

⁹²⁵ See paragraph 5.6 above.

nuclear energy should be regulated in terms of a coordinated legal response based on cooperation among AU member states.

7.4 Recommendations

Throughout the overview of the problem statement and the main concepts provided above, various recommendations related to addressing the main research question as well as related topics were made. In summation, the following statements should be seen to embody and integrate these recommendations and therefore to constitute the authors conclusions regarding the hypotheses and assumptions stated at the outset.

Regarding the assumptions that energy poverty hampers African sustainable development, that increased access to modern energy would function as a mitigating factor; and that there is a need for coordinated legal frameworks regulating increased modern energy access, the following recommendations are made:

- The law and policy resulting from regional cooperation should be based on, as well as reflect, the over-arching objective of sustainable development.
- To facilitate the formulation of coordinated law and policy at the AU level, a nuanced conceptualisation of sustainable development should be applied.
- This nuanced conceptualisation of sustainable development should be seen to refer to and reflect the inclusive and enforcing nature of the relationship between the normative frameworks of sustainable development law, human rights and the MDGs.
- The normative relationship between the concept of sustainable development and existing social and economic rights in conjunction with viewing energy poverty as human rights violation should form the foundation of distilling a right to energy.

- This right to energy should be extrapolated from the interpretation of explicit AU human rights contained in the Banjul Charter. In this interpretation the realisation of the right to development and the right to a generally satisfactory environment favourable to development depend upon the reading in of implicit human rights. Understanding that these rights can be fulfilled only once a right to energy is realised leads to the recommendation that a right to energy should be acknowledged as an independent self-standing AU human right. Furthermore, the *nexus* between increased access to modern energy sources, realising the right to energy, and the promotion of sustainable development serves to underline the viability of the proposed right to energy.
- Increasing access to modern energy sources as a method of mitigating the energy poverty prevalent throughout the African continent should enjoy the political and legal focus of AU law and policy and should be taken to embody the AU normative response to energy poverty.
- What is needed in this regard is coordinated regional law and policy geared towards increasing access to modern energy sources, which should in turn facilitate the promotion of sustainable development.
- Coordinated regional energy law and policy should therefore be formulated cognisant of existing development policy at the AU level and should not only reflect the principles of sustainable development but also expressly aim to promote their fulfilment.
- Promoting increased access to modern energy sources in order to promote sustainable development should accordingly be seen as the main objective of the envisaged coordinated regional energy law and policy. This objective relates specifically to those objectives contained in the UNSEI, which serves to indicate that regional energy law and policy should aim to promote increased access to sustainable energy sources.
- The modern energy sources to be included under the term sustainable energy should be dependent on the extent to which their application promotes sustainable development.

- The definition of sustainable energy is postulated as being: modern energy which promotes social well-being, stimulates economic growth and mitigates environmental degradation.

7.5 Conclusion

This thesis sought to identify the components of a coordinated AU nuclear legal framework aimed at the regulation of the implementation or expansion of nuclear energy as a factor promoting the sustainable development of the African continent. The following list comprises the conclusions reached throughout the discussions pertaining to topics related to the given research question and hypotheses.

- Increased access to nuclear energy will promote the sustainable development of Africa, and its regulation should take place in terms of a coordinated regional nuclear legal framework.
- The over-arching objective of the regional nuclear legal framework should be to increase access to nuclear energy in order to promote the sustainable development of the African continent.
- Promoting sustainable development through increased access to nuclear energy regulated in terms of a coordinated regional nuclear legal framework presupposes that the principles of sustainable development should also be included or reflected in regional energy law and policy.
- The establishment and implementation of regional nuclear law and policy will facilitate the expansion of the supply of nuclear energy in the form of launching nuclear power programmes.
- Launching a nuclear power programme should be regulated by regional legal instruments based on the principles of international nuclear law and the 3S concept.

- The instruments comprising the existing IAEA legal framework should be integrated into the proposed AU nuclear framework.
- The practical implementation of the legal framework when a nuclear power programme is being launched in an under-developed region such as Africa should take place with the assistance of the IAEA provided in terms of its Technical Cooperation Programme and Legislative Assistance Programme.
- The implementation of the proposed regional nuclear legal framework necessitates coordinated efforts which should be facilitated by a regional nuclear regulator such as the AFCONE.

Hence, the author concludes that the right to energy, the right to development, and the right to a healthy/satisfactory environment may be observed by means of regional cooperation on the formulation of a coordinated regional nuclear legal framework. A coordinated regional approach to nuclear energy expansion is indispensable to the promotion of the sustainable development of the African continent and in ensuring a bright future for current and future generations of Africans.

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