AN ENVIRONMENTAL LAW FRAMEWORK FOR CROSS-BORDER REGULATION OF THE GAS PIPELINE BETWEEN SOUTH AFRICA AND MOZAMBIQUE

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AFRIKAANS SUMMARY

Dié skripsie ondersoek die oorgrensregulasies vir omgewingsbeskerming in Suider Afrika. Dit word gedoen deur internasionale sowel as regionale en sub-regionale liggame en bestaande regsraamwerk in Suid-Afrika en Mosambiek rakende die oorgrens omgewingsregtelike regulasie van gas pyplyne te ondersoek.

Vanwee die toenemende behoefte aan omgewingsvriendelike sowel as energie effektiewe draers van energie, soos natuurlike gas, is dit van groot belang om toe te sien dat oorgrens gas pyplyne doeltreffend reguleer word. Daar word spesifiek gefokus op die SASOL Gaspyplyn projek tussen Suid-Afrika en Mosambiek. Die evaluering van die bestaande regsraamwerke word dan gevolg met sekere opmerkings en voorstelle vir die uitbreiding van bestaande SADC Energie Protokol.

Trefwoorde:
Omgewingsreg; gas pyplyn; natuurlike gas; Mosambiekse omgewingsreg; Said Afrikaanse ongewingsreg; oorgrens omgewingsbewaring; internasionale instrumente; regionale instrumente; sub-regionale instrumente; Wêreld Bank; ASME internasionale standaarde.

ENGLISH SUMMARY

This dissertation investigates the cross-border regulation for environmental protection in Southern Africa. This is done by evaluation of international, regional and sub-regional bodies followed by a comparison between existing South African and Mozambican environmental legislation.

Due to the ever increasing demand for energy efficient and environmentally friendly energy carriers, such as natural gas, it is of great importance that cross-border gas pipelines are sufficiently regulated. The study focuses on the SASOL Natural Gas Pipeline Project between South Africa and Mozambique. An evaluation of the existing legal frameworks is made, followed by recommendations for development of the existing SADC Protocol on Energy.

Keywords:
Environmental law; gas pipeline; natural gas; Mozambican environmental law; South African environmental law; cross-border environmental protection; international instruments; regional instruments sub-regional instruments; World Bank; ASME international standards.

LIST OF ABBREVIATIONS

AEC	African Economic Community
AHRLJ	African Human Rights Law Journal
ASME	American Society for Mechanical Engineers Code
BEE	Black Economic Empowerment
DA	Department of Agriculture
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
FM	Financial Mail
GDP	Gross Domestic Product
GNR	Government Notice Regulation
HGA	Host Government Agreement
I and APs	Interested and Affected Parties
IGA	Intergovernmental Agreement
MICOA	Ministry for the Co-ordination of Environmental Affairs
NEMA	*National Environmental Management Act* 107 of 1998 (South Africa)
NEPAD	New Partnership for Africa's Development
NFA	National Forest Act 84 of 1998
NWA	*National Water Act* 36 of 1998 (South Africa)
NEMP	National Environmental Management Programme
NGP	Natural Gas Project
RECs	Regional Economic Communities
SADC	Southern African Development Community
UNEP	United Nations Environment Programme
WSSD	World Summit on Sustainable Development

1. INTRODUCTION

The benefits of having an energy carrier with characteristics of reduced emissions, convenience and safety are becoming ever more apparent in contemporary times as environmental protection is shifted to the foreground in global politics.[1] Natural gas is an environmentally friendly energy carrier and is becoming the fuel of choice in many countries around the world.[2] In 1970 less than 5% of gas produced crossed international borders. The volume of gas being traded has increased eightfold and is projected to double by the year 2010 when about 22% of total production is expected to cross international borders.[3] At the moment about 75% of gas traded internationally is transported by pipelines.[4]

Since the Rio Declaration of 1991 various other International and Regional instruments have incorporated the principle of sustainable development.[5] The Southern African Development Community Treaty (SADC) adopted in 1992 has as one of its main regional objectives the sustainable utilisation of natural resources and effective environmental protection.[6] This enhances the attractiveness of the transfer of environmentally friendly natural gas. Both South Africa and Mozambique are member states of SADC. Mozambique has vast reserves of natural gas, but lacks a market, while its neighbouring country, South Africa, requires approximately 120 million gigajoules of gas per year but has no or little access to natural gas.[7] SASOL[8] subsequently built an 856 km long

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1 Ebeku 2003 *AHRLJ* 149.
2 See http://www.scienceinafrica.co.za/2003/october/gas.htm 8 Aug.
3 See http://vhost.mbendi.co.za/proj/p0m6.htm 8 Aug.
4 See http://vhost.mbendi.co.za/proj/p0m6.htm 8 Aug. The Energy Charter currently regulates cross-border gas pipeline transmissions.
5 The focus has however broadened from only sustainable development, to sustainability, see Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 3.
6 Chapter 3 article 5 - hereafter referred to as SADC.
7 See http://www.scienceinafrica.co.za/2003/october/gas.htm 8 Aug.
8 SASOL, originally known as "Suid Afrikaanse Steenkool en Olie" - South African Coal and Oil, is a South African company involved in mining, energy, chemicals and synfuels.

pipeline between Secunda and Temane to make cross-border transportation of natural gas into South Africa possible.[9]

Cross-border cooperation is an indispensable component for African countries to achieve economic prosperity. This essential component is enshrined in the *Charter of the United Nations,* adopted in 1945, as well as SADC.[10]

The tragic explosion at Texas City refinery as well as the pipeline leaks in Alaska are sad reminders of the grave risks associated with pipelines that still exist. These risks pertain to public safety, preservation of natural resources and the immense need for strict security measures in and around gas pipeline activities as well as focused environmental law regimes.[11] During the construction of the South African Mozambique pipeline vast areas of vegetation had to be removed and on the Mozambican side communities were relocated.[12] The maintenance of the transmission pipeline and the rehabilitation of land after closure of these pipelines are two of the main issues that must be firmly regulated. Moreover, an undertaking of this proportion has huge financial risks for all parties concerned. To assure legal certainty and attract future investors, it is important to identify the existing legal structures. In line with rapid growth of pipeline industry, legal frameworks regulating the pipeline's activities are necessary.

Mozambique and South Africa have different legal and administrative regimes controlling environmental protection.[13] During the SASOL natural gas project's[14]

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9 See http://www.scienceinafrica.co.za/2003/october/gas.htm 8 Aug.

10 The Charter of the United Nations urges states to cooperate in order to promote peace and mutual respect across borders This need for cooperation is enshrined in some of the international law principles such as sovereignty, state responsibility and good neighbourliness. The SADC Treaty recognises these principles as well as those of sovereign equality of member states; solidarity; peace and security; human rights; democracy and rule of law; equity; balance and mutual benefit; and peaceful settlement of disputes.

11 See http://news.bbc.co.uk/2/hi/business/7062669.stm 1 Nov.

12 Johnson 2004 *Common Ground* 10.

13 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 16.

14 Hereafter referred to as NGP.

negotiations no environmental law frameworks or institutions to govern and facilitate cross-border transportation of piped gas existed. The question that this dissertation seeks to answer is whether such environmental law frameworks have evolved or governing bodies been put in place since commencement with the construction of the NGP. To ensure that safety health and environmental issues are properly governed a framework for coordinated governance of such a pipeline will also be proposed.[15]

A comparative literature survey of both national (Mozambique and South Africa) and regional legal instruments of the African Union and SADC was conducted in order to propose recommendations regarding the existing framework to regulate transboundary piped gas between South Africa and Mozambique.[16] Only the environmental aspects were investigated pertaining to cross-border transportation of gas.[17] After giving a brief background to the NGP, a discussion will follow regarding environmental regulations of the African Union and the SADC protocols. A comparative survey of South African and Mozambican environmental legislation is then undertaken in order to come to a conclusion and make recommendations as to facilitate similar projects in future.

2. SASOL NATURAL GAS PROJECT

Natural gas is a substance which is formed through the decomposition of organic material trapped below the earth's surface.[18] Unlike other fossil fuels natural gas burns cleanly and produces only by-products such as water vapour and carbon dioxide.[19] The gas consists of simple hydrocarbons such as methane, ethane, propane and butane.[20] The heating value of gas is measured in gigajoules. When burning 40 kilograms of coal, the same amount of heat is created as with one

15 See Chapter 2 on African Union.
16 Maleck 2001 *ICPLP* 22.
17 Due to the extent of this dissertation other issues cannot be addressed.
18 See http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.
19 See http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.
20 See http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.

gigajoule of natural gas.[21] The SASOL project is aimed at delivering the heat equivalent of more than 5 million tonnes of coal each year.[22]

In 1956 natural gas fields were discovered in Mozambique.[23] The great potential of these fields could not be achieved due to civil unrest in Mozambique. However, 30 years later and due to the prevailing supportive political climate, the linking of the two countries through a natural gas pipeline became a reality in the form of the NGP. [24]

There are various wells in Temane, Northern Mozambique, from where natural gas is gathered and then transported to the central gas processing facility near Luido for subsequent transportation to customers in Mozambique and South Africa.[25] It is then cleaned, dried and compressed before being delivered to the inlet of the 865km stretch of high pressure steel pipeline.[26] See figure 1.

The pipeline is buried approximately one meter below the ground and has a capacity of 120 million gigajoule per year. Once the gas reaches Secunda in South Africa, it will be distributed via the national grid operated by SASOL.[27]

SASOL is currently the main supplier of piped gas to a variety of users in South Africa. It has developed a gas pipeline network of more than 1500km throughout South Africa.[28]

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21 See http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.
22 See http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.
23 Johnson 2004 *Common Ground* 9.
24 Johnson 2004 *Common Ground* 10.
25 Gas is gathered from 18 wells in Temane field and will later be joined by 15 more wells in Pande field giving a total of 33 gas production wells. For further reference see Johnson 2004 *Common Ground* 10.
26 Johnson 2004 *Common Ground* 10.
27 Johnson 2004 *Common Ground* 10.
28 Johnson 2004 *Common Ground* 11.

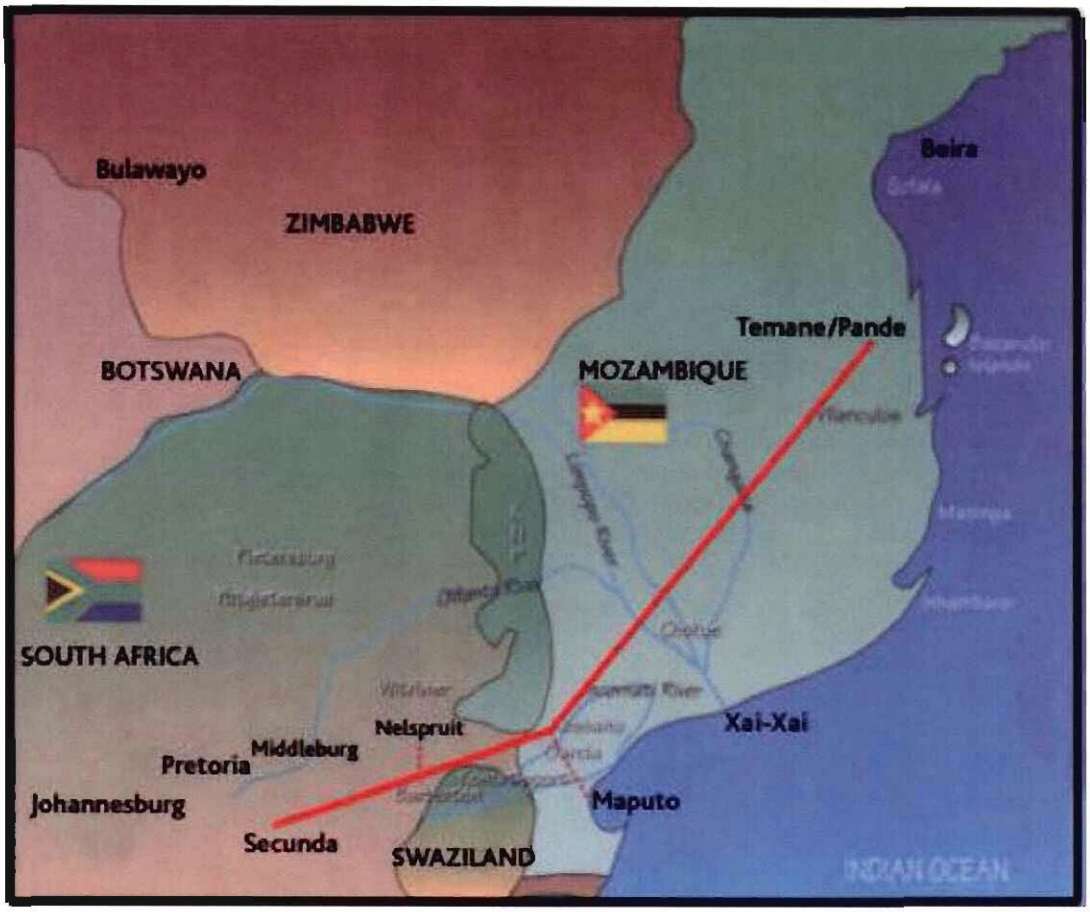

Figure 1: Pipeline route [29]

3. INTERNATIONAL INSTRUMENTS

Due to the bilateral international relationship between South Africa and Mozambique, it is important to investigate international structures and legal frameworks concerning environmental issues and cross-border co-operation. This section is aimed at identifying those structures and frameworks which are applicable specifically in the African and Southern African regions. Various such international as well as regional instruments exist; however, not all the existing instruments apply to the African context.

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29 Adapted from http://w3.SASOL.com/natural_gas/main/content.asp 2 Oct.

Environmental protection enjoyed serious international consideration for the first time in the *Rio Declaration*. The *Rio Declaration* has, as one of its main points of focus, sustainable development.[30] The *Rio Declaration* also introduces environmental principles which recognise the right to development, but qualifies it by stating that the right should be fulfilled to meet the social and environmental needs of future generations.[31] This is to be achieved by reducing and eliminating unsustainable patterns of production and consumption and improving and implementing the use of scientific and technological knowledge.[32] States are furthermore obliged to establish effective environmental legislation and standards and emphasis is placed on the need for environmental impact assessments.[33] States are urged to inform one another about possible adverse significant cross-border effects and should consult with the affected countries in good faith.[34]

Agenda 21 is regarded as an action plan and blueprint for sustainable development aimed amongst others at having governments in cooperation with United Nations bodies as well as intergovernmental and non-governmental organisations and the private sector.[35] The main purpose is to cooperate in the identification and development of sustainable energy systems which are less polluting and economically viable.[36] This idea was also discussed in Johannesburg during the World Summit on Sustainable Development (WSSD) and later adopted in the Johannesburg Plan of Implementation by WSSD in 2002. The Johannesburg plan specifically provides for energy issues and

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30 Sustainable development is defined in the Brundtland Report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". For further reference see http://www.are.admin.ch/are/en/nachhaltig/international_uno/unterseite02330/ 15 Oct.

31 Principle 3.

32 Principle 9. Provision is also made for the precautionary principle (principle 15), the polluter pays principle (principle 16) and environmental impact assessment.

33 Principle 11.

34 Principle 19.

35 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 4.

36 For further reading see Glazewski *Environmental Law* 35.

stresses the need for cross-border cooperation as well as the promotion of natural gas pipelines.[37]

An international instrument that could serve as an example for the governance of the NGP is the Energy Charter Treaty and its Protocols.[38] This treaty provides a multilateral framework for energy cooperation which was the backbone of the NGP's very existence in Europe and Asia. The Energy Charter Treaty is a legally binding instrument, the only one of its kind which specifically deals with inter-governmental cooperation in the energy sector.[39] None of the African countries, however, is party to the Energy Charter Treaty. [40] According to Du Plessis, the Energy Charter Treaty is the best existing structure for a project such as the NGP to be measured against.[41]

The aim of the Energy Charter is to provide a foundation of common rules, facilitating investment in projects which offer the most beneficial combination of high economic efficiency and low environmental impact, in order to promote long-term cooperation in the energy sector.[42]

Contracting Parties must attempt to minimize detrimental environmental impacts occurring either within or outside its borders from operations within the energy cycle in an economically efficient manner, taking proper account of safety.[43] Each contracting party must strive to take precautionary measures to achieve this goal.

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37 Johannesburg Plan of Implementation Paragraph v Part III.
38 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 5.
39 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.
40 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.
41 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.
42 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 6.
43 Article 19 see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.

Article 19 places an obligation on the polluter whom, in principle, should bear the cost of pollution, as well as trans-boundary pollution.[44]

Member states must improve their energy efficiency, and focus on the development and use of renewable energy sources.[45] Strategies must be devised to promote the use of cleaner fuels and to employ technologies and technological means to reduce pollution in a cost effective manner. Member states must share information on environmentally sound and economically efficient energy policies as well as cost-effective practices and technologies.[46] The Energy Charter stresses the importance of member states promoting public awareness of the possible adverse environmental impacts of energy systems.[47]

To give effect to the Energy Charter and free trade in energy, two model agreements were developed to serve as guidelines and to assist negotiations, to provide transparency regarding existing cross-border agreements and to reduce the cost of project implementation.[48] The one model agreement (intergovernmental agreement) is a guideline to assist in the construction and operation of a pipeline between different states. The host government agreement is concluded between the host government and project and regulates, amongst others, governmental obligations, environmental and other standards as well as liability issues.[49]

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44 Article 19(d) see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.

45 Article 19(d) see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.

46 Article 19(e) see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 7.

47 Article 19(f) see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 8.

48 *Model Intergovernmental and Host Government Agreements for Cross-border Pipelines Annex to CC* 252 para. 8 See www.encharter.org/index.php?id=38 15 Aug.

49 For further discussion on this subject see Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in southern Africa" 8.

As has been stated, the Energy Charter may serve as a guideline from which to take certain points in consideration. It is, however, important to take regional instruments which are aimed to facilitate environmental protection in an African context, into account

4. REGIONAL INSTRUMENTS

4.1. AFRICAN UNION

The African Union aims to promote sustainable development at economic, social and cultural levels as well as the integration of African economies.[50] It is founded on the principle of contracting parties, cooperation between states and harmonisation of policies as well as the integration of programmes.[51] Member states are obliged in terms of article 54 to coordinate and harmonise their energy policies as well as having to ensure effective development thereof. These member states should furthermore consider the harmonisation of their national energy development plans and share technological knowledge to improve environmental protection.[52]

The African Union's *Constutive Act* provides for the possibility of a specialised technical committee. This committee must deal with harmonisation and coordination of projects in Africa.[53] All African states still enjoy sovereignty in exercising their individual efforts to protect the environment and they have to inform the specialised technical committee of their own endeavours in this regard.[54]

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50 *Constitutive Act* of 2000 article 3(j). Hereafter referred to as the African Union Constitutive Act.
51 Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in southern Africa" 13.
52 Article 55.
53 Constitutive Act of 2000 article 4(2)(o).
54 Constitutive Act article 35(1)(c).

4.2. AFRICAN CHARTER ON HUMAN AND PEOPLES' RIGHTS

The African Charter on Human and Peoples' Rights[55], as ratified by all African states, contains the first ever international recognition of a right to the environment.[56] This is provided for in article 24 which states that "[A]ll peoples shall have the right to a general satisfactory environment favourable to their development". The African Charter on Human and Peoples' Rights places a common obligation on all African states to provide and secure a generally satisfactory environment which is favourable to people's development. When cross-border environmental legal frameworks are developed, article 24 of the African Charter should be taken into account.

4.3. TREATY OF THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

The SADC is a sub-region in the African Union and plays a key role in the successful operation of the African Economic Community.[57] The aim of the SADC is to create a community providing for regional peace and security as well as an integrated regional economy which is crucial for the success of a cross-border project such as the NGP.[58] As a regional institution, the SADC lays the foundation on which regional planning and development in Southern Africa could be pursued and move along the path towards eventual economic integration.[59]

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55 African [Banjul] Charter on Human and Peoples' Rights, adopted 27June 1981.
56 Van der Linde 2002 *CILSA* 99.
57 Article 28(1) of the African Economic Community Treaty.
58 Declaration and Treaty of SADC article 3.
59 The NGP is essentially a road to strengthen trade and investment links. Secondly, NEPAD is about removing the hurdles to cross-border business through economic reform and cutting through red tape. Trade officials and business involved in the mega project attest to the necessity of using political power to change old laws and regulations, to get bureaucrats moving. See Haffajee 2002 *FM* 29.

As a member of the SADC, South Africa's focus is on regional co-operation for the socio-economic development of the Southern African region.[60] South Africa's membership to the SADC provides an opportunity to coordinate other Member States' issues such as sustainable regional economic growth and the environment.[61]

The discussion focuses on provisions of cross-border cooperation and provisions relating to cross-border environmental protection and gas regulation. The SADC places a strong emphasis on the protection of the environment amidst increasing industrial development, such as the transfer of natural gas.[62]

Chapter 7 of the SADC Treaty specifically stresses the importance of cooperation[63] between Member States in the areas of natural resources and environment.[64] Gas transmission pipelines are a good example of such an area in which the cooperation of Member States is necessary in order to maintain environmental integrity and sustainable use of natural resources while taking advantage of these reserves. The NGP has enormous economic and social benefits for both South Africa and Mozambique. The project contributes to the economy of developing countries which include new job opportunities, additional revenue from royalties and taxes, as well as the development of infrastructure.

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60 South Africa acceded to the SADC Treaty on 29 August 1994 at the Heads of State Summit in Gaborone, Botswana. Mozambique was a founding member of the original South African Development Co-ordination Conference (SADCC), the forerunner to the SADC, established in 1980. The SADCC became the SADC in 1992 when the organisation's role shifted from harmonising economic development among the countries in Southern Africa to creating a regional common market.

61 See http://www.nepad.org.ng/PDF/About%20Nepad/sadc.pdf#search=%22SADC%20Protocol%20on%20Energy%22 10 Sept.

62 SADC Protocol on Energy article 2.

63 Cooperation forms a central theme of the SADC Treaty, its protocols and also the African Convention as discussed in 4.2 African Union above.

64 Article 21.

The SADC Protocol on Energy[65] states that all Member States should promote cooperation in development of all aspects of the region's petroleum resources.[66] This protocol specifically provides that Member States should create an enabling legal and fiscal environment which promotes, enhances and facilitates cross-border trade and transport of natural gas.[67] The objectives of energy cooperation in the SADC region include striving towards harmonisation of national and regional energy policies, strategies and programmes on matters of common interest based on equity, balance and mutual benefit and achieving standardisation in appropriate energy development and application including the use of common methods and other techniques.[68]

Due to state sovereignty each individual state has legislation and policies pertaining to protection of the environmental and gas-regulation. The African Union and SADC, however, state that these policies and laws should be coordinated to ensure an environment that is favourable to development and to protect the environment.[69] This is of great importance to facilitate cross-border cooperation in attaining economical prosperity, whilst guarding environmental integrity.

Article 3 of the SADC Protocol on Energy of 2002 urges member states to cooperate in harmonizing their national and regional energy policies, strategies and programmes. Member states have to cooperate in the development and utilization of energy efficient energy carriers such as natural gas and to ensure that energy sector development is environmentally sound.[70] To give effect to the protocol a Commission is established tasked with harmonisation of laws, regulations and agreements governing exploration programmes and to place

65 Published on 26 July 2002.
66 Annex 1 section 2.
67 Annex 1 section 2(b).
68 SADC Protocol on Energy article 3.
69 S 24 African Charter on Human and People's Rights. See also Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in southern Africa" 14.
70 Article 2(8) read with article 3. See also Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in Southern Africa" 14.

emphasis on environment, health, safety and security.[71] The national legal frameworks will now be addressed.

5. NATIONAL ENVIRONMENTAL LEGAL FRAMEWORKS

Both South Africa and Mozambique have legislation pertaining to environmental protection. The construction and operation of the natural gas transmission pipeline between Mozambique and South Africa had to comply with both South African and Mozambican legislation. On the South African part of the NGP, South African legislation applied and the Mozambican legislation in the Mozambican part. Neither South Africa, nor Mozambique at time of concluding the NGP contract, had specified gas pipeline legislation and only the prevailing environmental framework legislation served as structure.

In this section, the Constitutions of South Africa and Mozambique, their environmental framework legislation and sectoral acts that may relate to the natural gas transmission pipeline are discussed.[72]

5.1. SOUTH AFRICA

5.1.1. Constitution

South Africa's environmental governance is founded on section 24 of the *Constitution of the Republic of South Africa*, 1996 (Constitution).[73] Section 24 of the Constitution is divided into two components, namely section 24(a) which provides that "everyone has the right... to an environment that is not harmful to

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71 Item 2(a)(iv). See also Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in Southern Africa" 14.

72 See also Du Plessis "Environmental regulation of cross-border gas pipelines: challenges in Southern Africa" 15.

73 The influence of section 24 is seen in the environmental framework legislation as well as sectoral acts that will be discussed see 4.1.1 to 4.1.3.

their health or well-being" which has the flavour of a traditional fundamental right.[74] Section 24(b) places an obligation on government to ensure environmental protection for both present and future generations. According to Feris and Tladi,[75] section 24(b) creates a negative obligation to abstain from measures that may cause environmental degradation or that may generally impair the right guaranteed in section 24(a).[76]

Section 24 is not only by vertical implication binding on the state, but horizontally too, as section 8(2) provides that a provision of the Bill of Rights also binds natural and juristic persons such as SASOL.[77]

5.1.2. Environmental framework legislation

5.1.2.1. National Environmental Management Act

The National Environmental Management Act (NEMA)[78] was promulgated to give effect to section 24 of the Constitution. According to Van der Linde,[79] the aim of

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74 Glazewski *Environmental Law* 72. Also see Van der Linde and Basson "Environment" in Chaskalson *Constitutional Law* 50-9-50-27.

75 In South Africa this has to be achieved according to the Constitution section 24 through specific legislation to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources and at the same time it must promote economic and social development. An example of this type of legislation is NEMA. See Feris and Tladi "Environmental Rights" in Brand and Heyns *Socio-Economic Rights in South Africa* 257.

76 Feris and Tladi "Environmental Rights" 257.

77 Ferreira 1999 *TSAR* 90-113.

78 NEMA was passed in November 1998; it subsequently came into force in January 1999 and is currently, as Glazewski puts it, "the flagship statute of the Department of Environmental Affairs and tourism" for further reference see Glazewski *Environmental Law in South Africa* 137. Both the South African *National Environmental Management Act* 107 of 1998 and Mozambique *Environmental Act* 20 of 1997 can be regarded as environmental framework legislation (In this regard see Nel and Du Plessis 2001 *SAJELP*). There currently exists a trend to introduce environmental framework legislation in order to ensure an integrated, ecosystem-orientated legal regime which permits a holistic view of the ecosystem, the inter-relationships and inter-actions within it as well as the linkages in environmental stresses. For further reference see Nel "The potential for EIA Partnerships in SADC – a comparison of legislative arrangements in Lesotho and South Africa."

79 Van der Linde *Compendium* 31

NEMA is to create a legal framework in terms of which the rights contained in section 24 of the Constitution can be given effect to.[80]

The principles of NEMA are strong reflections of various aspects associated with contemporary emerging environmental law norms and international conventions. These norms include, among others, the preventative principle,[81] precautionary principle,[82] polluter pays principle[83] and public trust doctrine.[84] These principles act as guidelines for all spheres of environmental governance.

NEMA also obliges persons to exercise a duty of care according to section 28 in the instance where their activities, operations or conduct causes or poses a risk of significant pollution or environmental degradation. This duty of care entails that each person must investigate, assess and evaluate the impact of the proposed activities on the environment and to implement precautionary or mitigatory and remediation measures. This places an obligation on a company such as SASOL to plan and coordinate a transmission pipeline in order to adhere to section 28 of NEMA and strive to minimize environmental impacts.

Section 28 of NEMA pertaining to pollution establishes an extensive duty of care. This duty of care links to past, present and future pollution and is coupled with

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80 During the planning and construction of the NGP, NEMA was not yet enacted and the prevailing environmental law was the *Environment Conservation* Act 73 of 1989 (ECA). Government authorities were empowered by s 31A of ECA to prohibit any action which according to them might cause serious damage to the environment or to instruct the particular parties for such action to take steps necessary to remedy or rectify the situation. For purposes of this paper there will not be focussed on ECA but rather the current NEMA.

81 Section 2(4)(a)(i) states that disturbance of ecosystems and loss of biodiversity are to be avoided, or minimised and remedied. This principle is further reflected in section 2(4)(a)(iii) in stating that if such disturbance cannot be avoided must be minimised and remedied.

82 Section 2(4)(a)(vii) states that a risk-averse and cautious approach is applied which takes in account the limits of current knowledge about the consequences of decisions and actions.

83 Section 2(4)(p) states that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid by those responsible for harming the environment.

84 Section 2(4)(o) namely that the environment is held in trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

remediation of damage.[85] In *Bareki NO v Gencor Ltd.* it was decided that this duty of care as well as the polluter pays principles rely on strict liability which in South African law is not part of the common law.[86]

In NEMA, the general objectives of integrated environmental management are set out in section 23, which also includes the promotion of section 2 principles[87] in all decision-making processes, the identification, prediction and evaluation of the actual and potential impact of the environment, socio-economic conditions and cultural heritage, risks and consequences as well as alternatives to minimize negative impacts on the environment and to ensure that all impacts receive due consideration. The act refers to the best practicable environmental option which should prevail.[88] NEMA has been extensively amended in 2004 to provide for environmental impact assessments which apply to the whole life cycle of a project if it is a listed activity.[89] For such listed activities an operator has to obtain proper authorisation.[90] NEMA, however, does not regulate the authorisation itself, but briefly refers thereto. The EIA Regulations[91] as well as the Minerals and Petroleum Resources Development Act provide that the relevant officials may order an environmental audit to be done as an authorisation condition or in case of non-compliance.

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85 See Van der Linde and Basson "Environment" in Chaskalson *Constitutional law* 50-14 and Kotze and Du Plessis *Stell LR* 2007.

86 Kotze and Du Plessis *Stell LR* 2007.

87 According to section 2(3), development has to be socially, environmentally and economically sustainable. In accordance with section 2(4) sustainable development requires the consideration of all relevant factors including the following: (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

88 Section 1(iii) NEMA.

89 See paragraph 1.2.1

90 Section 24 NEMA.

91 GN 527 in GG 26275 of 23 April 2004 see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 21.

In any process where hazardous substances are handled or transported, the risk always exists of an unexpected accident or occurrence and therefore it is important to determine what the emergency regulations entail.[92] The control of emergency incidents is regulated in terms of NEMA section 30 and section 20 of South Africa's *National Water Act* (NWA)[93]. The term "incident" is defined in section 30(1)(a) of NEMA as:

> An unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

With the occurrence of such an incident, the responsible person must undertake various stipulated measures as soon as is reasonably practicable.[94] These include taking all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment; undertake clean-up procedures; remedying the effects of the incident and assess the immediate and long-term effects of the incident on the environment and public health.[95]

There are no explicit provisions regarding cross-border environmental governance in NEMA. The non-existence thereof is a great deficiency in NEMA as NEMA serves as framework legislation.

5.1.2.2. National Water Act

The consideration of water legislation was important when the principal EIA was conducted. The Limpopo River had to be crossed using horizontal directional drilling methods, while some rivers had to be crossed by using traditional open

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92 This was the case in Belgium in August 2005 when an explosion ripped through a leaky gas pipeline at an industrial zone and the country's worst industrial accident in nearly 40 years, leaving 18 dead. For further reference see http://www.planetark.com/dailynewsstory.cfm/newsid/26418/newsDate/05-Aug-2004/story.htm 2 Oct.

93 *National Water Act* 36 of 1998, hereafter referred to as NWA.

94 Glazewski *Environmental Law in South Africa* 154.

95 Section 30(4)(a)-(d).

cut methods.[96] The possibility existed that four of the sixteen rivers to be crossed would be flowing during construction. The other rivers were normally dry in the winter season and the EIA forecast that the significance of construction impacts at these crossings would be little.[97]

Any stream alterations or change of the river bed and banks require that the person in control of such an activity notify the Department of Water Affairs and Forestry (DWAF) of such intentions not less than 14 days before the start of such an operation or activity.[98] In terms of section 21(c) read with section 40 of the NWA, impeding or diverting the flow of water in a watercourse must be licensed unless the activity is permissible as a continuation of an existing lawful use as defined in section 32 of the Act or is included under a general authorisation in terms of section 39 of the Act. A person, who has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.[99] The environmental effects of such activities have to be given great consideration within the EIA process.[100]

The Changane River channel and adjacent wetland consist of deep, fine sediments, derived from the poorly drained Mananga soils.[101] The pipeline route avoided all of the small circular pans that are common between the Limpopo River and the north of the Changane River, but indirect impact on the

96 http://ifcln001.worldbank.org/ifcext/spiwebsite1.nsf/ebfd9adc6b3daa7685256e260074856d/02937fc98b99412985256d6c0072ab05/$FILE/NGP%20Executive%20Summary%20-%20July%202003.pdf 29 Aug.
97 http://ifcln001.worldbank.org/ifcext/spiwebsite1.nsf/ebfd9adc6b3daa7685256e260074856d/02937fc98b99412985256d6c0072ab05/$FILE/NGP%20Executive%20Summary%20-%20July%202003.pdf 29 Aug.
98 GN R704 in GG 20119 of 4 May 1999.
99 GN R704 in GG 20119 of 4 May 1999.
100 Glazewski Environmental Law in South Africa 446.
101 http://ifcln001.worldbank.org/ifcext/spiwebsite1.nsf/ebfd9adc6b3daa7685256e260074856d/02937fc98b99412985256d6c0072ab05/$FILE/NGP%20Executive%20Summary%20-%20July%202003.pdf 29 Aug.

hydrodynamics of these systems were, however, unavoidable.[102] Section 19 of the NWA regarding the prevention and remedying effects of pollution states in section 19(1) that:

> An owner of land, a person in control of land or a person who occupies or uses the land on which - (a) any activity or process is or was performed or undertaken; or (b) any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

It was decided in the case of *Harmony Gold Mining Co Ltd. v Regional Director: Free State, Department of Water Affairs and Forestry*[103] that the intention of the legislature by the term "reasonable measures" was to lay down a flexible test dependent on the circumstances of each case. It was further decided that constitutional and statutory anti-pollution objectives would be obstructed if the section 19(1) (NWA) measures apply only to the surface of the land.

The relevance of the NWA can be summarized as being: whoever partakes to conclude such transportation project must act with the utmost precaution and if pollution indeed occurs, the polluter must see to the mitigation and remediation thereof. Part of the precaution entails an EIA to be carried out.[104]

5.1.2.3. National Forest Act[105]

This act applies to measures to be taken where the construction of such a natural gas pipeline will pass through woodland areas and plantations. The Department of Agriculture (DA) outlined special measures in the NFA[106] to protect forested areas in South Africa. This is done by promoting the sustainable management

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102 http://ifcln001.worldbank.org/ifcext/spiwebsite1.nsf/ebfd9adc6b3daa7685256e26007485 6d/02937fc98b99412985256d6c0072ab05/$FILE/NGP%20Executive%20Summary%20-%20July%202003.pdf 29 Aug.

103 *Harmony Gold Mining Co Ltd v Regional Director: Free State, Department of Water Affairs and Forestry* 2006 SCA 65.

104 See 5.1.3 Legal framework regarding EIA below.

105 National Forest Act 84 of 1998, herein after NFA.

106 Chapter 3.

and development of forests for the benefit of all; creating conditions necessary to restructure forestry in state forests; and by giving special measures for the protection of forests and trees. In terms of this act the removal, relocation or pruning of any protected plants as a result of pipeline construction requires a permit. Protected indigenous plants are also controlled under the relevant provincial ordinances or acts dealing with nature conservation.[107]

5.1.3. Legal framework regarding EIA

As stated earlier, the NGP was undertaken subject to the provisions of ECA,[108] but in future such activities will be undertaken subject to chapter 5 of NEMA.[109] Currently the EIA process and the granting of environmental authorisations[110] required for the undertaking of certain listed activities which may have a substantial detrimental effect on the environment is administered by DEAT.[111] Liability of environmetal impact practitioners are not regulated by statutes, but rather contractually.[112]

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107 An example thereof is the *Mpumalanga Nature Conservation Act* 10 of 1998 as administered by the Mpumalanga Parks Board as well as *National Environmental Management Biodiversity Act* 10 of 2004.

108 Application to the relevant department or authority had to be made for authorization to proceed with activities identified as having a potentially detrimental impact on the environment. The identification of activities which might have detrimental effects on the environment was regulated by GN 1882 in GG 18528 of 5 September 1997. The regulations regarding identified activities were set out in GN 1183 in GG 5999 of 5 September 1997. These regulations required that an EIA had to be conducted for all transportation structures or handling facilities for any substance which is dangerous or hazardous and is controlled by national legislation. It further stated that such an EIA had to be conducted by an independent consultant. Subsequently the results of such an EIA had to be used as the basis for a decision to approve or reject the application. These regulations also determined that alternatives must be considered for any such environmentally detrimental development.

109 Effective from 1 July 2006.

110 Previously known as RODs.

111 Glazewski Environmental Law in South Africa 137.

112 See also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 22.

The regulations issued in terms of Chapter 5 of NEMA list gas transmission as an activity for which an EIA needs to be done.[113] Therefore, in future, under this new regulation, a pipeline transmission of natural gas of similar magnitude will be subject to the obtaining of an environmental authorisation prior to undertaking of activities, supported by either basic assessment or full environmental impact assessments.[114]

5.1.4. Gas Act

The South African *Gas Act* 48 of 2001 was enacted on 21 February 2002.[115] The main objectives of the *Gas Act* are the promotion of efficient, sustainable, and orderly development and operation of the downstream gas industry. It strives furthermore to facilitate investment, ensuring safe, efficient and environmentally responsible downstream gas industry, as well as the promotion of historically disadvantaged firms and ensuring that gas services are equitable. It aims to meet both present and future needs, promoting competitive markets, promoting skills and employment equity whilst facilitating gas trade between the RSA and other countries including the promotion of access to affordable and safe gas.[116]

The *Gas Act* prescribes the form and procedure in accordance to which certain individuals have to apply for a licence to construct and operate gas transmission facilities.[117] The *Gas Act* requires that an applicant for licence must indicate that he/she complies with all environmental legislation.[118] The applicant must also

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113 GN 385 in GG 28753 of 21 April 2006 explains the procedures for purposes of environmental authorisation applications and GN 387 in GG 28753 of 21 April 2006 specifically includes gas transmissions under activity type number 1(j) which reads as follows: "the construction of facilities or infrastructure, including associated structures or infrastructures, for the bulk transportation of dangerous goods using pipelines, funiculars or conveyors with a throughput capacity of 50 tons or 50 cubic metres or more per day." Such an EIA will then serve as a basis for DEAT to decide on either approving or rejecting a proposed activity.

114 Schedule to GN 387 in GG 28753 of 21 April 2006.

115 Compared to the Mozambican *Petroleum Act* see 5.2.4. *Petroleum Law* below.

116 Chapter 1 section 2.

117 Section 15(1) *Gas Act* 48 of 2001.

118 Chapter 2 section 12.

provide proof of compliance with regulations made under the *Gas Act* regarding environmental rehabilitation.[119] All applications must include plans and proof of the applicant's ability to comply with all applicable labour, health, safety and environmental legislation.[120] However, if the pipeline or facility is already in operation at the commencement of these rules, then the operator or pipeline owner need not apply to the National Energy Regulator. When deciding on the granting of a license the gas regulator must take into account the national interest, the promotion of regional growth as well as any other social objective.[121]

The operator in South Africa must submit a closure plan to the National Energy Regulator, but only six months prior to closure or dismantling.[122] An environmental impact assessment must be done with regard to the decommissioning activities, site clean up and disposal of dangerous material as well as chemicals.[123]

The provisions set out in section 36 of the *Gas Act* specifically concern the Mozambique Gas Pipeline Agreement and determine the following:

> (2) Despite anything to the contrary in this Act, the agreement binds the Gas Regulator until 10 years after natural gas is first received from Mozambique.
> (3) From the date of the conclusion of the agreement, the terms of the agreement relating to the following matters constitute conditions of a licence issued in terms of section 19:
> *(a)* Exclusive rights and periods granted in respect of transmission and
> *(b)* Third party access to the transmission pipeline from Mozambique and to
> (c) Prices charged by SASOL for gas;
> *(d)* SASOL's obligation to supply customers, distributors and reticulators with gas;
> (e) Administration of the agreement, distribution of gas; certain of SASOL's pipelines; and
> (4) The Gas Regulator must formally issue licences to the entities contemplated in the agreement and may impose such conditions in respect of each licence in terms of this Act as are not contrary to the agreement.[124]

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119 Chapter 2 section 12. According to Du Plessis *Encyclopedia of Laws* 65 the legislation does, however, not address the full circle of gas namely production, exploitation, transportation, distribution and consumption but rather deals with these topics piecemeal if at all.
120 Section 16(2).
121 Section 19(2) *Gas Act* 48 of 2001.
122 Piped Gas Regulations Section 11(1).
123 Piped Gas Regulations Section 11(2).
124 Section 36(2)-(4).

The rights and interests of investors of the NGP are therefore protected by this act for a period of 10 years. After this period the National Energy Regulator may change the conditions and other aspects of the authorisation. It is a matter of great concern for investors as various new regulations and legislation have been promulgated since conclusion of the contract. There exists uncertainty whether these pieces of legislation together with what may be promulgated in future will be in harmony with one another and be able to successfully govern the NGP.

5.1.5. Gas Infrastructure Plan and White Paper on Energy Policy

A gas infrastructure plan was developed to help create a strategy for the development of the natural gas industry in South Africa. The South African government aspires to promote the gas industry based on its energy policy objectives as set out in the White Paper on Energy Policy.[125] These objectives include increased access to affordable energy services; improved energy governance; stimulation of economic activity; management of energy-related environmental impacts; security of supply through diversity of supply; competition within and between energy carriers and the promotion of cross-border projects.[126]

The plan is aimed at taking these policies into practical implementation that focuses on a local gas transmission network. The legislature, however, failed to incorporate aspects of cross-border governance.

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125 Gas Infra-Structure Plan 19 April 2005 Chapter 5.2.
126 Gas Infra-Structure Plan 19 April 2005 Chapter 5.2.

5.1.6. Piped Gas Regulations

After the National Energy Regulator[127] had been established, the Department of Minerals and Energy promulgated the Piped Gas Regulations[128] in order to promote the orderly development of the piped gas industry.

The National Energy Regulator must facilitate the addressing of historical inequalities to broaden the country's economic base and accelerate growth, job creation and poverty relief.[129] The Regulations also provide specifically for third party access to transmission lines in cases where it is not specifically regulated by agreement.[130] The Regulations furthermore provide for an allocation mechanism to ensure third party access to uncommitted capacity in storage facilities.

Expropriation procedures are also specifically catered for. A licensee as intended in section 32 (1) of the Act may request the Regulator, in writing, to expropriate land, or any right in, over or in respect of land on his or her behalf.[131]

Section 11(1) concerning rehabilitation of land, states that a licensee must, not later than six months prior to termination, relinquishment or abandonment of licensed activity, submit to the Regulator a plan for approval for the closure, removal and disposal, as the case may be, of all installations relating to the licensed activity.

127 National Energy Regulator Act 40 of 2004.
128 Piped Gas Regulations GNR321 in GG29792 of 20 April 2007.
129 Section 5(2).
130 Section 6(1).
131 Section 10(1).

5.2. MOZAMBIQUE

The Mozambican legal framework pertaining to gas consists of the *Constitution*, environmental framework legislation, *Environmental Act*, *Water Act*, legal framework regarding EIA and *Petroleum Law*.

5.2.1. Constitution

The *Constitution of the Republic of Mozambique*[132] provides citizens the right to live in, and the duty to defend, a balanced natural environment.[133] There is also a clear duty not only on the Mozambican government to protect its citizens from an unbalanced environment, but also a horizontal duty placed on citizens to defend this right. This right enjoys protection in vertical application by the state having to promote efforts to guarantee the ecological balance and the conservation and preservation of the environment for the improvement of the quality of life of the citizens.[134] Section 36 further states that the state shall determine the use and enjoyment of the country's natural resources in the national interest.[135] According to section 3 of the *Land Act* 19 of 1997[136] only fixed or movable property may be privately owned, the land still remains property of the state and cannot be alienated.[137] Therefore all the natural resources including that of natural gas and the common environment are to be used in a manner decided by the state. This is in contrast with South Africa's right to own land, however the South African

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132 *Constitution of Mozambique*, 1990 herein after Constitution.
133 Section 72 "All citizens shall have the right to live in, and the duty to defend, a balanced natural environment".
134 Section 37 "The State shall promote efforts to guarantee the ecological balance and the conservation and preservation of the environment for the betterment of the quality of life of its citizens".
135 Section 36 "The State shall, with regard to the national interest, promote the inventory, the knowledge and the development of natural resources and shall determine the conditions for their use and enjoyment."
136 Hereafter referred to as the *Land Act.*
137 Section 3 "The land is the property of the state and cannot be sold or otherwise alienated, mortgaged or encumbered."

Government still has the prevailing power to keep environment as public trust for future generations.[138]

5.2.2. Environmental framework legislation

5.2.2.1. Environmental Act

The Mozambican *Environmental Act*[139] was promulgated on 1 October 1997. This act acknowledges the responsibility of the Government of Mozambique to promote and implement a National Environmental Management Plan.[140] The *Environmental Act,* in section 9, specifically bans the production and deposit of any toxic and polluting substances in the nation's soils, sub-soils, water or the atmosphere and prohibits the undertaking of activities likely to accelerate erosion, desertification or any other form of environmental degradation beyond the legally established limits.

Pollution is defined as:

> The deposit within the environment of any substance or residue, regardless of its form as well as the emission of light, sound and other forms of energy in such a way and in such a quantity that such deposit has a negative impact on the environment.[141]

"Pollution" is defined by the negative effect it has on the environment. Section 9 states that pollution is permitted as long as it is within the standards adopted and licensed. There is no absolute prohibition on the deposit of polluting substances. One might argue that if natural gas or its residues were to escape from

138 Chapter 1(4) (O) NEMA.
139 Enacted by Act 20/97 approving the *Environmental Act.* Hereafter referred to as *Environmental Act.*
140 The National Environmental Management Programme was approved by the Council of Ministers in 1995. It is aimed at promoting and implementing sound environmental policy. The Ministry for Coordination of Environmental Affairs (MICOA) formulated the National Environmental Programme as master plan for the environment in Mozambique. It contains a National Environment Policy, a proposal for Framework Environmental Legislation and an Environmental Strategy.
141 Section 1.

transmission or ignite, it could be seen as a pollutant but it is the author's opinion the legislator did not intend such interpretation.

Section 12 forbids all activities that may threaten biodiversity and makes provision for the establishment of environmental protection zones in section 13. The definition of pollution is extended in section 14 to issues relating to the erection of any structures and provision is made for the promulgation of special regulations in respect of the erection of structures, along among others, railways, roadways, dams, ports and airports in order to protect the functioning of the natural gas project as well as to ensure the protection of environmental integrity.[142]

The *Environmental Act* also regulates the prevention of environmental damage.[143] According to chapter IV the licensing and registration of activities which are likely to cause significant environmental impacts shall be carried out in accordance with an environmental licence which will be issued subject to an environmental assessment of the proposed activity.[144] Any other licence which may be required for the activity will be conditional to the issuance of this environmental licence.[145]

A decommissioning plan must be submitted two years prior to closure. Such a plan must consist of an environmental impact assessment of the effects of the termination of operations.[146]

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142 This section covers the construction of the infrastructure or pipeline as possible pollutant and gives it the status of a partial protection zone.
143 Chapter IV.
144 This chapter is similar to chapter 7 section 28 of NEMA which places a duty of care and remediation of environmental damage on all persons who have or may cause significant environmental degradation or damage. For further reference see 5.2.3.
145 Article 15.
146 Article 32 Decree 24/2004.

The *Environmental Act,* in section 25, unlike NEMA, establishes a general obligation on all parties to carry out activities with a high risk of degradation of the environment to have civil liability insurance.

There are furthermore provisions in Chapter V for environmental audits to be undertaken for all activities which could result in environmental damage due to its lack of appropriate technologies.[147] If such environmental damage is to occur, then the operators of the activities will be held responsible for the cost of repairs.[148] Such an environmental audit includes not only the common associated impacts of activities, but also the level of compliance with the environmental licensing process and other laws, the conditions of operation and the measures taken to rehabilitate the environment and to protect human life.[149] Recommendations made by such an auditing report are binding on the audited party and non-compliance is considered an offence.[150] Auditors must be registered and are held criminally liable for information which they provide.[151]

The Mozambican regulations require in section 6(2)(e) that emergency and accident identification, response and impact mitigation plans be included in the impact mitigation strategy.

Apart from the regional and sub-regional protocols and directives as well as legislation in South Africa and Mozambique, there are also other ways in which

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147 Chapter V section 18(i) – Environmental Audits - All activities which on the date this law enters into force are operating without the application of appropriate technologies or procedures and as a consequence, result or could result in damage to the environment shall be subjected to an environmental audit. The operators of the activities shall be responsible for the costs which result from the repair of environmental damage which may be determined by audit.

148 Section 18(ii) - The operators of the activities shall be responsible for the costs which result from the repair of environmental damage which may be determined by audit.

149 Article 4, see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 22.

150 Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 22.

151 Article 13, see also Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 22.

the environmental concerns are upheld. This takes place by expressed contractual provisions.

5.2.2.2. Water Act[152]

There are various instances where rivers had to be crossed and waterways be adjusted to make way for the pipeline in the NGP.[153] Therefore the *Water Act* plays a vital role regarding environmental risks and duties. In section 54 it states that any activity susceptible of causing contamination or degradation to the water (including release of effluents) requires a special license from the competent authority after payment of a fee. The Cabinet may regulate standards for the release of effluents and methods of water treatment. The regulation must determine the quantities and quality limits for any discharge operations. Section 55 states that any person who contaminates the water above the authorised limits has the responsibility to re-establish the situation prior to the damage and to pay a fine.

5.2.3. Legal framework regarding EIA

The EIA process is administered by the Ministry for Co-ordination of Environmental Affairs.[154] In 1995 the Ministry for the Co-ordination of Environmental Affairs (MICOA) drew up a National Environmental Management Programme,[155] a policy document that outlines the priorities for environmental management and sustainable development in Mozambique that serve as the framework for environmental law.

152 *Water Act* 16 of 1991.
153 See also 5.1.2.2. National Water Act.
154 Hereafter referred to as MICOA.
155 Hereafter referred to as NEMP.

The Mozambican EIA Regulations[156] are embedded in the *Environmental Act* which establishes the legal regime for environmental licensing based on EIA studies to be undertaken for certain activities.[157] The Mozambican EIA regulations define in section 1(a) the area of impact as "the area and the geographical space directly or indirectly affected by the environmental impacts of a certain activity."

According to the regulations, an EIA is mandatory for any project that may cause significant impacts due to its nature, dimensions, location or other factors, which will be the case with projects similar to the NGP.

In terms of the regulations, an EIA must comprise, amongst other things, of the identification and assessment of mitigatory measures and an environmental management plan, including the monitoring of impacts. This then has to be submitted to MICOA as a report. The technical review of the report forms the basis for the approval of the proposed activity and the issuing of a record of decision.[158]

5.2.4. Petroleum Law[159]

Unlike the South African *Gas Act*, the Mozambican *Petroleum Law* does not provide licensing regulations for pipeline activities, instead it prescribes a gas pipeline concession contract, and no mention is made to include environmental aspects.[160]

The *Petroleum Law* requires authorisation to construct and operate a gas pipeline if it was not already included in a contract for exploration and production

156 EIA Regulations, Decree 76/98.
157 Issued in terms of the Cabinet Council Decree 76/98, dated 29 December 1998.
158 Nel "Partnership in the SADC Region – Learning points for South Africa from Mozambique's EIA Regulations" 6.
159 *Petroleum Law* 3 of 2001.
160 Article 2, Du Plessis *Environmental regulation of cross-border gas pipelines: challenges in Southern Africa* 26.

of gas. The holder of a gas pipeline right, must, amongst other requirements, prepare and submit a Development Plan in accordance with good oilfield practices, for prior approval by the Council of Ministers.[161] Additionally, said person must submit a decommissioning plan for the pipeline at least two years before the planned termination of production.[162]

For purposes of gas transportation to South Africa for the specified period of thirty years from signature of the Development Plan, the land surrounding the pipeline is considered to be partial protection zones.[163] The Act furthermore obliges the operator licensed in Mozambique, to submit to good pipelines practices and to conduct his operations in accordance with environmental and other applicable legislation.[164] This is done in order to guarantee that there is no ecological damage or destruction caused by gas operations, but where unavoidable, to ensure that environmental protection measures are in accordance with internationally acceptable standards. It is for this reason that the holder of the right must prepare and submit to the relevant authorities for approval an EIA as well as environmental impact mitigation measures and contingency plans.

A development plan must be included with the Mozambican pipeline contract.[165] The development plan must specify the infrastructure which will be used, the status of land use permits, a technical description of the facilities as well as the gas pipeline route.[166] The development plan should furthermore also point out quality standards that will be implemented, a description of safety objectives and

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161 Section 14.
162 Section 17.
163 Section 13.
164 Section 23.
165 Article 14(2) Decree no 3 of 2001. "Gas pipeline development plan" is defined in article 1(q) Decree no 3 of 2001 as "a plan for the construction and operation of... gas pipeline system comprising the pipelines, valve stations, pump stations, compressor stations and associated installations required for the purpose of transportation of petroleum." According to article 1(m) the definition of "petroleum" also includes natural gas.
166 See also article 55 Decree no 24 of 2004.

risks, an EIA as well as the main implementation, operating and maintenance policies.[167]

Operators are furthermore obliged to introduce management systems to ensure the systematic management and implementation of their activities. These management systems should also include amongst others requirements pertaining to safety, environmental protection, resource management, third party liability, decommissioning, rehabilitation and damage to facilities.[168]

6. NON-LEGISLATIVE ARRANGEMENTS

6.1. WORLD BANK

Apart from the regional and sub-regional protocols and directives as well as legislation in South Africa and Mozambique, there are other ways in which environmental concerns are upheld. This takes place by expressed contractual provisions. Subsequently, this discussion will focus on the different contractual provisions and other non-legislative arrangements that were made in order to secure cross-border environmental integrity throughout the NGP.

The World Bank has throughout the NGP played a key role as a financing party.[169] The World Bank is expected to implement Agenda 21 and also incorporate the principles of the Rio Declaration which, according to Birnie and Boyle,[170] has forced the World Bank to take account of the needs of sustainable development, environmental protection and human rights concerns in decision making. The consequence is that environmental action plans which outline the lending country's environmental problems and strategies to address these

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167 Article 30(4)(a)--(l) Decree no 24 of 2004.
168 Article 35(3) Decree no 24 of 2004.
169 http://ifcln001.worldbank.org/ifcext/spiwebsite1.nsf/ebfd9adc6b3daa7685256e26007485 6d/02937fc98b99412985256d6c0072ab05/$FILE/NGP%20Executive%20Summary%20-%20July%202003.pdf 29 Aug.
170 Birnie and Boyle; International Law and the Environment 60.

problems are followed by environmental assessments aimed at ensuring that development proposals take account of environmental factors.[171]

Since the World Bank's assessment directives were first issued in 1989, Bank-funded projects have routinely been screened for their potential domestic, trans-boundary and global environmental effects.[172] The purpose of these assessments are to ensure that development options are environmentally sound and any environmental consequences are recognised early in the project cycle and taken account of in the design of the project.[173]

6.2. ASME INTERNATIONAL STANDARDS

The SASOL pipeline network and installations are constructed and operated according to the American National Standard for Gas Transmission and Distribution Piping Systems.[174]

The ASME makes explicit provision for a range of safety considerations aimed at addressing the possible causes and consequences of failure, and at ensuring the integrity of the pipeline.[175] Furthermore, it covers such aspects as: design, installation and testing; materials and equipment; welding practices; piping system components and fabrication details; operating and maintenance procedures and corrosion control.[176] The pipeline design code also makes provision for population density requirements that have been factored into the pipeline agreement and pipeline developments plans signed between SASOL

171 Birnie and Boyle *International Law and the Environment* 60.
172 Birnie and Boyle *International Law and the Environment* 131.
173 Birnie and Boyle *International Law and the Environment* 130.
174 Anon 2006 HYPERLINK http://www.asme.org/NewsPublicPolicy/GovRelations/PositionStatements/Pipeline_Safety_Enhanced.cfm 7July.
175 Anon 2006 HYPERLINK http://www.asme.org/NewsPublicPolicy/GovRelations/PositionStatements/Pipeline_Safety_Enhanced.cfm 7July.
176 Anon 2006 HYPERLINK http://www.asme.org/NewsPublicPolicy/GovRelations/PositionStatements/Pipeline_Safety_Enhanced.cfm 7July.

and the Government of Mozambique. In terms of the NGP agreement, various pipeline exclusions zones have been set aside with the aim of minimising the potential for any harm in the event of an incident. The pipeline's integrity was assured through the introduction of an effective preventive maintenance plan that has been developed on the basis of guidelines contained in ASME B31.8.[177]

Technology exists which is used to perform pipeline integrity evaluation tests at predetermined intervals. These tests take into account issues such as area classification, uncontrolled third party activity, pipeline failures, pressure and temperature cycling, overpressure protection, above ground facilities and pressure vessel inspection reports.[178]

7. CONCLUSION AND RECOMMENDATIONS

South Africa and Mozambique share a gas pipeline regulated by each country's legislation. At time of concluding the agreements of this pipeline there were no environmental law frameworks or institutions to govern cross-border gas transmission pipelines. The existence of adequate legal frameworks is of great importance as a variety of risks pertaining to safety, health, and environment throughout the whole life cycle of gas pipelines subsists.[179] The question was how cross-border pipelines should be governed in order to safeguard environmental integrity. In order to determine what the legal framework would be, international, regional, sub-regional instruments were discussed, as well as the

177 Anon. 2006 HYPERLINK http://www.asme.org/NewsPublicPolicy/GovRelations/PositionStatements/Pipeline_Safety_Enhanced.cfm 7July.

178 SASOL Gas has furthermore successfully maintained its accredited ISO 9002 quality management system and ISO 14001 environmental management system since August 1994 and January 1997, respectively. For further reference see Anon 2006 HYPERLINK http://www.asme.org/NewsPublicPolicy/GovRelations/PositionStatements/Pipeline_Safety_Enhanced.cfm 7July.

179 See 2.

legal regimes of Mozambique and South Africa pertaining to gas pipelines. Non-legislative instruments were also discussed.

The Rio Declaration focused on sustainable development and was reiterated in regional and sub–regional treaties and protocols, enhancing the importance of environmentally friendly use of energy sources as well as effective environmental protection.[180] Both Agenda 21 and the Energy Charter emphasise the fact that an environmental friendly method must also be one that is cost effective and economically viable.[181] This is of great importance for developing countries such as South Africa or Mozambique where environmental protection all too often comes at an unaffordable price. As such, cost-effectiveness is not addressed by South African nor Mozambican legislation, although the South African NEMA refers to the so-called best practicable environmental option.[182]

The Energy Charter, though not binding on African States, provides an advanced framework from which future legal structures and legal entities may take certain points in consideration.[183] These include amongst others, the foundation of common rules, facilitating investment in projects which offer the most beneficial combination of high economic efficiency and low environmental impact and the promotion of long-term cooperation in the energy sector.[184] The Energy Charter is aimed at the development of energy efficient, energy carriers.[185] Similar to both the South African and Mozambican framework legislation, the Energy Charter places great importance on the promotion of environmental awareness as well as minimisation of environmental impacts. The Energy Charter emphasises the importance of states having to share technological knowledge, where the South African and Mozambican legislation fail to address this issue.

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180 See 3.
181 See 3.
182 See 5.1.2.1.
183 See 3.
184 See 3.
185 See 3.

The AU however places an obligation on Member States to co-ordinate and harmonise their energy policies as well as to ensure effective development thereof. It also obliges Member States to see to the harmonisation of their respective national energy development plans and policies.[186] SADC furthermore places subsequent emphasis on the importance of regional co-operation for socio-economic development of the Southern African region.[187]

The SADC Protocol on Energy emphasises cooperation between states and specifically regarding cross-border environmental protection health, safety and security.[188] It was found that to date a governing legal framework to regulate cross-border environmental issues in either of the two countries still does not exist.

When comparing the legislation of South Africa and Mozambique several similarities and dissimilarities are found. Prior to the commencement or development of a gas facility the South African *Gas Act* requires the submission of an EIA in order to obtain an environmental authorisation, while the Mozambican *Petroleum Law* requires a development plan, technical standards and an EIA.[189] Regarding the decommissioning of such a facility the Mozambican *Petroleum Law* requires appropriate application 2 years prior to decommissioning, while the *Gas Act* merely demands 6 months notice but additionally requires an EIA to be conducted.[190] The Mozambican *Environmental Law* contains a unique element namely its provision of environmental auditing.[191] These audits have a holistic approach and include the whole life cycle of projects and are statutorily binding in nature.

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186 See 4.1.
187 See 4.2.
188 See 4.2.
189 See 5.1.5 as well as 5.2.5.
190 See 5.1.5 as well as 5.2.5.
191 See 5.2.5.

Furthermore, various other differences between South African and Mozambican Law exist. The *Petroleum Law* provides for gas pipeline contracts for production and transmission facilities unlike the *Gas Act* which requires a license to operate such facilities.[192] The *Gas Act* provides for measurement to be taken to meet social objectives and regional growth while the *Petroleum Law* abstains from taking this into account.[193] The Mozambican *Petroleum Law* obliges pipeline operators to introduce management systems in order to ensure the systematic management and implementation of their activities, while this is not regulated in the South African *Gas Act*.[194] Neither the recent South African 2007 *Piped Gas Regulations* nor the *Gas Infrastructure Plan* is aimed at addressing cross-border environmental governance of pipeline activities.[195] Contingency plans are also specifically catered for by the Mozambican *Petroleum law*, but the South African *Gas Act* itself does not contain any such provisions. The NWA and NEMA, however, regulate emergency situations.[196]

Apart from the legal regulations that the NGP had to adhere to, there were also requirements set by one of the main funding institutions for the project, namely the World Bank that had to be met.[197] These requirements included the ASME international standards practised in America.[198]

State sovereignty places a dilemma in the ideal of harmonisation of interstate legal systems especially in the diverse SADC region. This was seen in the investigation of the environmental framework legislation of both South Africa and Mozambique which opulently provide for environmental protection within their respective territories, but no cross-border related provisions.[199] A question that

192 See 5.1.5 as well as 5.2.5.
193 See 5.1.5 as well as 5.2.5.
194 See 5.1.5 as well as 5.2.5.
195 See 5.1.4.
196 See 5.1.2 as well as 5.2.2.
197 See 6.1.
198 See 6.2.
199 See 6.2.

remains namely which legal system will apply in the period after the NGP contract lapses in 10 years?

As natural gas is ever becoming more popular, the existence of cross-border transmission pipelines for natural gas will also increase in the SADC region. To ensure that safety, health and environmental issues are probably governed, the author proposes that the SADC Protocol on Energy be expanded for co-ordinated governance of cross-border pipelines. The protocol should provide for the sharing of technologies, harmonious EIA regulations and address the issue of cost effective methods for environmental protection with the focus on energy efficiency. It could also provide that social objectives and regional growth be taken into account, management systems be introduced and that contingency measures should be in place. Provision should also be made for environmental auditing and the regulation of the liability of EIA practitioners and pipeline operators. Draft agreements similar to those of the Energy Charter could be drafted and adapted for the SADC region.

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