

University of Nairobi

Institute of Diplomacy and International Studies

Exploitation of Natural Resources and International Environmental Policies: The Case of
Arabuko Sokoke Forest Kilifi, Kenya

Doreen Katwai

(R52/75115/2014)

Supervisor:

Prof. Peter Kagwanja

A Research Project submitted in partial fulfillment of The Degree of

Master of Arts in International Studies

October 2016

DECLARATION

I, Doreen Katwai hereby declare that this research project is my original work and has not been presented for a degree in any other University.

Signed..... Date.....

Doreen Katwai

This project has been submitted for examination with my approval as University Supervisor;

Signed..... Date.....

Prof. Peter Kagwanja

ABSTRACT

Abundance of natural resources for any country is considered a blessing. This is because natural resources are economic drivers. However exploitation of these resources come with their challenges. More often than not, exploitation of these resources results in conflict either violent or structural. While exploitation of natural resources is a domestic affair, its effects are felt globally, be it international trade or international environmental governance. It is the latter that informs this dissertation.

Focus is shifting towards, global environmental governance in the context of international relations. And central to that focus is how exploitation of natural resources interacts with existing international environmental policies. This dissertations examines the links between these two phenomena and their impact in international relations. It goes further to examine the politics arising from these phenomena. The global North and South debate on environmental governance and sustainable development. Existing international environmental policies have pitted the developed countries against the developing, with the former arguing that overexploitation of natural resources will harm the environment. The latter on the hand, are dismissive of this argument, rather advocating for exploitation of natural resources in a bid to fuel economic growth.

This dissertation also looks at how different developing states are handling the issues arising from the exploitation of natural resources and the environmental policies they have adopted. It closely examines the conflict arising from the discovery of oil and gas in the Arabuko Sokoke forest in Kilifi County, Kenya. Exploration for oil has been stopped after issues of environmental degradation were raised. Kenya finds itself in a similar dilemma faced by developing states, and has to chart its way, since discovery of oil was made in the country.

Conceptual issues are very critical in analyzing the current affairs and to guide future discussions and frameworks. Emphasis is also placed on developing technology as a mitigation effort that further enables exploitation of natural resources with minimal distress to the environment.

LIST OF ABBREVIATIONS

API-American Petroleum Institute

CDM-Clean Development Mechanism.

CFCs- chlorofluorocarbon

CNA- Center for Naval Analyses

COP- Conference of Parties.

ECSP- Environmental Change and Security Project

EIA-Environmental Impact Assessment

EITI-Extractive Industries Transparency Initiative

EMCA-Environmental Management Coordination Act

EPA- Environmental Protection Agency

ERP- Emergency Response Plan

ESIA-Environmental and social Impact Assessment.

ESMP- Environmental and Social Management Plan

FEPA-Federal Environmental Protection Agency

FME-Federal Ministry of Environment

GDP-Gross domestic product

GHG-Greenhouse gases

IEP-International Environmental Politics.

IFC- International Finance Corporation

IGOs-International Governmental Organizations.

IPCC- Intergovernmental Panel on Climate Change

IUCN- Internal Union for CONSERVATION OF NATURE

JI-Joint Implementation.

LDCs- Less Developed Countries

LFN- laws of the Federation of Nigeria

LIST OF ABBREVIATIONS.

LRTAP- Convention on Long Range Trans boundary Air Pollution

MDGs-Millennium Development Goals

MEAs- Multilateral Environmental Agreements

MNCs-Multinational Corporations.

NEMA- National Environmental Management Authority.

NESREA-National Environmental Standard and Regulation Enforcement Agency

NGOs – Non Governmental Organisations

NMK-National Museums of Kenya

NOSDRA- National Oil Spill Detection and Response Agency

OGP-Oil and Gas Producers

OPEC- Organisation of the Petroleum Exporting Countries

OPRC-Oil Pollution Preparedness and Response cooperation

POPs-Persistent Organic Pollutants

PSC-Production Sharing Contract

UCS- Union of Concerned Scientists

UN- United Nations

UNCED- UN Conference on Environment and Development

UNCHE-United Nations sponsored Conference on Humans and the Environment.

UNDP-United Nations Development Program

UNEP- United Nations Environment Programme.

UNESCO-United Nations Educational Scientific and Cultural Organisations

UNFCCC-United Nations Framework Conventions on Climate Change.

UN-United Nations

WHO-World Health Organization

WMP-Waste Management Plan

WSSD-World Summit on Sustainable Development

WTO-World Trade Organization

DEDICATION

This dissertation is dedicated to my father Christopher Katwai Musumbu, who has always encouraged me to fulfill my academic ambitions, and for inspiring me to undertake this course, just as he did.

ACKNOWLEDGEMENTS

I would like to acknowledge my supervisor, Prof. Peter Kagwanja, for guiding me through this process, thank you. To my family, thank you for your support.

TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	iii
LIST OF ABBREVIATIONS	iv
DEDICATION	vii
ACKNOWLEDGEMENTS	viii
LIST OF FIGURES	xii
CHAPTER ONE	xii
1.1 Proposal.....	1
1.1.1 Introduction	1
1.2 Background.....	2
1.3 Theoretical Framework.....	6
1.4 Hypotheses	9
1.5 Problem Statement	10
1.6 Objectives	13
1.6.1 Specific Objectives.....	13
1.6.2 Research Questions	13
1.7 Justification of the Research Problem.....	14
1.8 Literature Review International Environmental Policy	15
1.9 Research Methodology	21
1.9.1 Research design.....	21
1.10 Limitations of the Study.....	22
1.11 Conclusion	22
CHAPTER TWO	23
INTERNATIONAL ENVIRONMENTAL POLICIES AND INTERNATIONAL RELATIONS	23
2.0 Introduction.....	23
2.1 Background.....	24
2.2 International Environmental Governance Conceptual Issues.	29
2.2.1 Realism.....	30

2.2.2 Liberalism.....	30
2.2.3 Green Theory and Globalization Theory	31
2.3 Actors in International Environmental Politics.....	32
2.3.1 Nation States	32
2.3.2 International organizations.....	33
2.3.3 NGOs, and global environmentalist groups	33
2.3.4 Corporations and the private sector.....	34
2.3.5 Scientists, expert groups, and knowledge holders	34
2.3.6 The broader public and individual leaders	35
2.4 International Environmental Problems	36
2.4.1 Trans-boundary environmental problems	37
2.4.2 Local-cumulative problems.....	37
2.4.3 Commons, trans-boundary, and local-cumulative issues	38
2.4.4 Issue linkage: Environmental change and human security	42
2.5 Conclusion	45
CHAPTER THREE	47
GLOBAL NORTH AND SOUTH INTERESTS IN SUSTAINABLE DEVELOPMENT.	47
3.1 Introduction.....	47
3.2 The North South Environment Debate	48
3.3 Economic Development and Environment	52
3.4 The Predicament of Developing Countries.....	54
3.6 Unplanned Exploitations of Environmental Resources, Nigeria’s Experience.	58
3.7 Conclusion	61
CHAPTER FOUR	62
EXPLOITATION OF NATURAL RESOURCES AND IMPLEMENTING	
INTERNATIONAL ENVIRONMENTAL POLICIES: THE CASE OF ARABUKO	
SOKOKE FOREST, KILIFI KENYA	62
4.1 Introduction.....	62
4.2 Exploitation of Natural Resources and Implementing International Environmental	
Policies: The Case of Nigeria	65

4.3 Exploitation of Natural Resources and Implementing International Environmental Policies: The Case of Arabuko Sokoke Forest Kilifi Kenya	66
4.3.1 Environmental protection concerns.....	67
4.3.2 The Mandate of NEMA.....	76
4.3.3 The ESIA Process.....	77
4.3.4 The Environmental and Social Management Plan (ESMP).....	85
4.3.5 The Draft National Energy Policy 2012.....	85
4.4 Conclusion	86
CHAPTER FIVE	88
5.1 Introduction.....	88
5.1.1 Overexploitation and Bio Diversity	88
5.2 North South Debate on Environmental Policies	93
5.3 Global Economic Governance and the Environment.....	99
5.4 Impact of Mining on the Physical Environment.....	100
5.5 The Case of Arabuko Sokoke Kenya.....	105
5.6 The Way Forward	110
5.7 Conclusion	112
REFERENCES	114
APPENDICES	130
Appendix I: Interview with Erin Energy Managing Director	130

LIST OF FIGURES

Figure 2.1 Major international environmental problems	39
Figure 3.1 Environmental resources in risk of overexploitation in Nigeria	59
Figure 4.1 Map of Proposed Seismic Study.....	70
Figure 4.2: Map of the actual seismic survey	72
Figure 4.3 Overview of Seismic reflection method	75

CHAPTER ONE

1.1 Proposal

1.1.1 Introduction

How exploitation of natural resources and environmental conservation relate has been defined as antagonistic. Aigbedion, et al, posit that exploitation of natural resources has done more harm than good. They argue that the stages of natural resource production, have harmed the environment in various ways including but not limited to, ecological changes, destruction of the environment, pollution, destabilizing soil and rock masses, as well as causing radiation.¹The environmental damage has not only resulted in damage of arable land, but as well as cash crops and the general vegetation.² These sentiments are widely shared especially by international institutions that have created various instruments that advance such ideas. Many developing countries more so in Africa are party to various treaties that places them at a disadvantage in matters related to exploitation of their natural resources, and industrialisation in general.

In the extractive industry, much of the damage is unavoidable, and if states must undertake any extraction for economic gain, both the government and the extractive action to take pre-emptive and mitigation measures to ensure that the activity has minimal effect on the environment.³ It has proved very difficult for most states to find a balance between exploiting natural resources and ensuring that it does not harm the ecosystem. The possibility of a balance is much welcomed by states, more so African states, who are looking at ways of

¹ I. Aigbedion, et al, 'Environmental effect of mineral exploitation in Nigeria', *International Journal of Physical Sciences*, Vol. 2 (2), (2007) pp. 033-038

² Ibid

³ Ibid

maximising their potential by exploiting existing resources and others that are just being discovered.

1.2 Background

Natural resources can be classified as either renewable or non-renewable resources. Renewable natural resources can be restored in a period of a few months or even years.⁴ For example, solar energies, hydraulic and wind. Non-renewable resources are found in the earth and cannot be restored by any processes in any defined period of time.⁵ Examples are oil, coal and metals. The formation of these resources occurs over tens of millions of years, which is considerably slower than the rate at which they are extracted.⁶

Focus has been placed on these resources and their role in conflict. Direct conflict refers to conflict over renewable resources when two or more parties compete for the direct control and or access to these resources. Indirect conflict occurs when renewable resource scarcity combined with other social or economic factors to exacerbate friction domestically or internationally.⁷ When indirect conflict occurs environmental factors are only one factor interacting with other social factors such as poverty and other structural issues.⁸ An example of indirect conflict, is the phenomena of environmental refugees that the United Nations (UN) has coined to refer to people who are displaced because of the effects of environmental

⁴ M. Kaya, 'Environmental Impacts of Mineral Resource Exploitation and Use', *Osmangazi University, Technological Research Center (TEKAM)*, (2001)

⁵ Ibid

⁶ Ibid

⁷ Daniel Schwartz and Ashbindu Singh, 'Environmental Conditions, Resources, And Conflicts', *United Nations Enviironmental Programme*, (1999)

⁸ Ibid

scarcities.⁹ Direct International Conflict over natural resources has however in the last decades roused response from the international community, as the effects of such conflicts have threatened international security and peace.

However these responses have not been directed at violent conflicts only, but also at environmental degradation. Environmental policy and economic development are often viewed as conflictual. That is, increasing in economic activities will put the environment in harm's way, while environmental policy will only dampen economic growth.

Whether owing to considerations of development, competition over resources, concerns about global climate change, scrutiny of the industrial sector has never been greater. The quantities of mineral resources consumed by different societies are dependent on the individual society's level of development and standard of living.¹⁰

The production of natural resources, can cause negative changes to the environment. Later in the 20th century there has been a rapidly growing awareness in environmental issues from different stakeholders.¹¹

Mining, quarrying, and other extraction activities have a visible impact on the environment. Disposal of water products is also a major concern as it is involved in these activities. Other activities that pose harm to the environment include but not limited to smelting and refining of ore.¹² Much of the effects of these activities are visible. The degradation of arable land; the

⁹ Rodney White, 'North, South, and the Environmental Crisis', *University of Toronto Press*, (1993)

¹⁰ Ibid

¹¹ Ibid

¹² Ibid

pollution of the environment through noise and airborne dust are all environmental problems associated with the extraction industry. However, these activities can be done over a short period of time, and thus the possibility of mitigation and reduction of environmental risks during mining and after the extraction activities. Many countries especially those with an abundance in natural resources have environmental policies to ensure that economic gains made from exploitation of resources are not made to the detriment of the natural environment. However the unwillingness and or inability of government agencies to implement these policies has given rise to scepticism and resistance from environment activists and members of the public, in extraction activities, due to the impacts of these activities.¹³

Ultimately, one of the long term effects of resource extraction and production is ecological disturbance. Similarly, the noise pollution can frighten away animals within range of activities such as blasting, during mining and quarrying.¹⁴ Oil spillage is a major concern for states when it occurs either during mining or from oil pipe lines or illegal bunkering, as the effects are adverse on the environment.¹⁵ The flora, fauna and water are affected. Generally, the vegetation may be adversely affected if not totally degraded. Contamination from oil spills can also responsible for changes in the food chain. This is because, the spills especially in the water, may affect aquatic life due to contamination and may in turn result in the death of the small terrestrial animals that feed on fish and other aquatic life. Soil contamination from oil spills may also have similar effect on the flora and fauna. These are pronounced

¹³ Ibid

¹⁴ Ibid

¹⁵ I. Aigbedion, 'Environmental Pollution in the Niger-Delta, Nigeria', *Inter-Disciplinary J. Enugu-Nigeria*, **Vol 3(4)** pp. 205–210. (2005)

effects on the ecosystem that causes ecological disturbance.¹⁶ The degree of pollution of water, air and land varies, depending on the intensity of the activities. Usually major pollution occurs during the exploitation stages than during mineral exploration and especially so if carried out on a large scale.¹⁷¹⁸ In Nigeria, reports on oil spills from tanks, burst pipelines and tankers of varying intensities in oil producing states, are not unusual. The pollution affects both land mammals and aquatic life.s Fishermen in Nigeria have been directly affected as fish found in surface waters are killed by contamination of the water by oil spills, directly affecting their source of livelihood. It has become extremely harder for residents of the Niger Delta to obtain water, due to groundwater pollution. Much of the well water is also polluted as it is more often than not covered with a thin oil film.¹⁹

The weight of these environmental problems has been questioned against the weight of the economic development as a consequence of exploitation of natural resources. These question has caused a dilemma for many states more so African states who find themselves in a position where their actions in regards to the extractive industries are questioned. Environment policies of most countries are derived from international environmental policies, and with pressure from international and local environmentalists piled on governments, most state's become reluctant to pursue exploitation of natural resources to their full potential.

¹⁶ A.A Adepelumi, et al, 'Model tank electrical resistivity characterization of LNAPL migration in a clayey-sand formation', *Environ. Geol*, **Vol 50**, pp. 1221–1233 (2006)

¹⁷ I. Aigbedion, et al, 'Environmental effect of mineral exploitation in Nigeria'

¹⁸ UNESCO, 'MAB Regional Training Workshop, Akure, Nigeria, 23–26 July', pp. 314–323 (1995)

¹⁹ I. Aigbedion, et al, 'Environmental effect of mineral exploitation in Nigeria'

1.3 Theoretical Framework

Bounded Rationality Approach

Arguably, the term ‘bounded rationality’ was first published in ‘Models of Man’ authored by Herbert Simon.²⁰ Bounded rationality approach posits that in decision making, individuals are not able to fully capable to comprehend all variables in entirety, due to limitations of their own minds. Before Herbert Simon, various scholars had developed ideas close to that of bounded rationality, notably Edgeworth’s ‘limited intelligence’ and ‘limited rationality’ by Almond. Simon, had also earlier worked on the concept of Behavioural Model of Rational Choice.²¹ Adam Smith as well contributes conceptually to Simon’s ‘Bounded Rationality in Social Science’. Today, the term is applicable to in various disciplines, including but not limited to Artificial Intelligence, psychology and economics. Herbert Simon’s most notable work is the bounded rationality approach, a theory he referred as a combination of two words, ‘satisfy’ and ‘suffice’ to make up ‘satisficing’. According to him this is a useful tool in explain the rational of economic decision-making.²²

Decision making being a search process that can and is guided by aspiration levels.²³ An aspiration level is a value of a goal variable which must be attained by an alternative which is satisfactory. In the context of a company, goal variables can be compared to profit and market share.²⁴

²⁰ Till Grüne-Yanoff, ‘Bounded Rationality’, *Royal Institute of Technology, Stockholm, Sweden* (2007)

²¹ Ibid

²² The Economist- Guru ‘Herbert Simon’ March 9th 2009 Retrieved from <http://www.economist.com/node/13350892> on 12th October 2016

²³ Reinhard Selten, ‘What is Bounded Rationality?’ *Paper prepared for the Dahlem Conference 1999* (May 1999)

²⁴ Reinhard Selten, ‘What is Bounded Rationality?’

Decision alternatives are guaranteed but are achieved after a search process. The search process is only complete when and if an alternative that is satisfactory or surpasses the aspirational levels is attained.²⁵ This is the process which Simon refers to as satisficing. Satisficing is the premise of bounded rationality approach. However, there is more to the theory than satisficing, because aspiration levels are not sedentary, but keep fluctuating and thus their dynamic nature means they must be adjusted accordingly to the situation at hand. Aspirational levels increase when and if, access to satisfactory alternatives is feasible and are lowered if not. These thoughts are based on Simon's prior works on the bounded rationality approach.²⁶

Features that inform his earlier writings on the theory include: Search for alternatives, satisficing, and aspiration adaptation. Contrary to the premises of classical economics, he argued that individuals do not seek to maximise their benefit from a particular course of action, since they are not able to acquire and process all the information available and required to make a decision.²⁷ Not just because they can't gain access to all the information there is, but because even if they did, their intelligence will hinder them from fully processing that information. The human mind hinders itself. He explained it as being bound by cognitive limits.²⁸

According to Gigerenzer, this approach shows that people have a chance of using the principle of trade-offs.²⁹ This means that in exploring natural resources, the state must weigh

²⁵ Ibid

²⁶ Ibid

²⁷ Ibid

²⁸ Ibid

²⁹G. Gigerenzer, & Dahlem Workshop, 'Bounded rationality: The adaptive toolbox: Report of the 84th Dahlem Workshop ,Berlin, March 14-19, 1999', *Cambridge, Mass. u.a.: MIT Press* (2001).

its options well to consider what will be overlooked or sacrificed on behalf of another. This is an opportunity to also prioritize in the context the needs of the society as at that time.

Bounded rationality approach has been gaining considerable traction in the social and behavioural sciences.³⁰ For many states endowed with natural resources and particularly energy resources, there exists a dilemma between exploiting natural resources for economic development and protecting the environment. A conflict that can only be resolved by realising that the former is a variable that is of greater importance to states than the latter. Thus it is only logical for states to exploit natural resources but to the extent that they comply reasonably with international environmental policies. This theory explains decision making is a process, that the rational decision must be taken but bounded by rules and norms. This can be an attempt to find a compromise between exploitation of natural resources and environmental protection.

What is needed is a satisfaction from the available resources. The bounded rationality approach can specifically explain the need for a state to exploit a resource such as oil, however international environment policies can and have affected their goals considerably. The bounded rationality approach explains that search for alternatives is one way of settling disputes of this nature, as well as adapting our aspirations to the situation at hand. For example, once the exploration is done, society will adapt to the environment and new circumstance.

³⁰ Till Grüne-Yanoff, 'Bounded Rationality'

In addition to that, the principle of uncertainty posits that people find it hard working with probabilities and assessing risks therefore this approach not only explores alternative solutions but also looks at potential risks of these alternatives and how to mitigate them in order to achieve desired goals. According to G.K. Weyland, this tool is relevant in decision making³¹ for government policy in economic, social and environmental issues. The World Energy Resources Survey 2013, argues that the main fossil fuels; oil, gas and coal are in abundance and will last for decades³² hence they must be harnessed and made use of while they still last.

The decision to exploit natural resources must be made if and when the risks of doing so have been assessed and solutions are crafted to have minimal interruptions in the environment.

1.4 Hypotheses

This dissertation seeks to prove that there is existing conflict between the need for states to exploit their natural resources and the need to observe existing international environmental policies whose interests are protecting the environment from overexploitation. As things stand, economic development takes precedence over environmental protection, an issue that causes concern in the international scene. This dilemma has also pitted the developed countries against the developing countries as the approach to sustainable development differs. The global North- South debate is based on the developed countries assertion that any

³¹ K. G Weyland, 'Bounded rationality and policy diffusion: Social sector reform in Latin America', *Princeton, N.J: Princeton University Press*, (2006)

³² World Energy Council, 'World Energy Resources Survey 2013' Retrieved from https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf on 12th October 2016

further exploitation of natural resources in the hopes of economic growth will result in further environmental degradation. For developing countries, however this is a dismissive view, as their biggest priority is to alienate their citizens from poverty, and to do that by industrializing.

However developing countries are not ignorant to the importance of environmental conservation and are thus the need to come up with a viable and sustainable approach.

Advancement in technology is one of the ways to find a lasting solution to these issues, seeing as governments will always be pro-active in exploiting natural resources for economic gain.

It will also be prudent for governments to involve various stakeholders in international and national environment policies, including the public, in decision making processes, as many protests against exploitation of natural resources cite lack of popular participation as one of the causes to rejection of governments' projects.

It would also be critical for a review of conceptual issues regarding issues surrounding exploitation of natural resources and international environmental policies, as most conflicting issues stem from the varied approaches relating to such issues.

1.5 Problem Statement

Environmental conflict is an issue that many a time local communities participate less in. However in Kenya Kilifi County that is not the case. In 2014 the residents and environmental activists who live next to the Arabuko Sokoke forced an American Multi-

National Corporation CAMAC Energy now Erin Energy to stop its operations of gas and oil exploration in the forest. The forest is part of block L16, one of the oil blocks allocated by the Kenyan government and covers about 9,000 acres. The forest is found in the middle of the block and remote sensing shows that the area covered by the forest overlies a structure that is favourable for the accumulation of hydrocarbons.

The economic and social impact assessment was conducted by a local company, Earth View Geo-Consultants that assessed the impact of the seismic surveys on both the environment and surrounding communities. The report for block L16 covers topics that range from bio diversity to the impact of air and noise emissions. It was reviewed and approved by the National Environmental Management Authority NEMA, and a licence to acquire seismic licence was issued to CAMAC Energy in May 2014.

Conservationists however claim that the ESIA was not done properly. According to them, for CAMAC Energy to get a licence from NEMA, they would need to get access permits from mandated agencies before undertaking their seismic surveys in areas under their jurisdiction. They claim that the Kenya Forest Service did not issue permits for CAMAC Energy to access the Arabuko Sokoke forest.

The forest is one of UNESCO bio diversity hotspot, one of only 25 in the world. The forest is also the last large remnant of the coastal forests. It is part of the Eastern Arc Mountains and coastal forests bio diversity hot spot. With acreage of 103,784, it is the largest indigenous coastal forest in East Africa. Mammals are also endangered. More than 100 elephants live

inside and communicate by sending subsonic vibrations through the ground. Other threatened animals are butterflies, and the Sokoke owl, which is only found in this particular forest. The forest the conservationists insist should be protected and no mining should take place. They say that it will lead to the extinction of some species. However Earth view geo consultants referred to 2 endangered species- grey zebra and African wild dogs that don't live in the survey area known as L16.

The activities in the forest have also attracted local politicians. According to the Kilifi deputy county speaker Teddy Mwambire, CAMAC ENERGY contracted the Bureau of Geographic prospecting to carry out seismic testing of the region. The deputy speaker claims that residents were consulted on issues of land but not compensation. He also claims that the ESIA was undertaken in what he terms as mysterious ways. He alleged that residents were being approached by the mining company and being told that they have support from the county government. However according to some of the county legislators there are still issues to be resolved before the company can be given a go ahead. CAMAC Energy stopped its activities in the forest November 2014, after complaints, saying it will discuss the matter with various stake holders before it proceeded with mining.

The exploration company CAMAC now Erin energy was quoted stating that the national government was reluctant in being involved in the arising conflict. Erin energy made its case before the Ministry of Environment and Natural Resources that it had technology that would not only protect the forest but the animals in it. They insisted that it was possible for them to have minimal effect on the environment. Vocal groups such as Nature Kenya, wrote to the

ministry as well arguing it not possible. The rising conflict caught the attention of both local and international media as well environment conservation groups.

Eventually Erin Energy stopped all activities in the forest. National government was perceived to be wary of taking any visible action regarding the matter so as to discourage any local and international scrutiny, despite the benefits hoped to be acquired if and when oil is discovered in the forest.

1.6 Objectives

The main objective of this project is to determine the relationship between exploitation of natural resources and international environmental policies.

1.6.1 Specific Objectives

1. To determine the role of international environmental policies in International Relations
2. To examine the global North and South interests in Sustainable Development
3. To examine the impact of exploiting oil on environmental policies in Arabuko Sokoke forest Kilifi, Kenya

1.6.2 Research Questions

1. What is the relationship between exploitation of natural resources and international environmental policies?
2. What is the role of international environmental policies in International Relations?

3. What are the global North and South interests in Sustainable Development?
4. What is the impact of exploiting oil on environmental policies in Arabuko Sokoke forest Kilifi, Kenya?
4. What are international actors' interests in environment protection vis a vis economic interests?

1.7 Justification of the Research Problem

This research paper will seek to highlight the conflicting interests that are economic and environmental in nature. The priorities of the government concerning these interests, and actions taken by the said states in regards to environment protection.

Since the benefits of oil exploration and production are numerous, this study is important as it will seek to find if a balance can be achieved, where economic development is not achieved at the expense of environmental protection. Currently in Africa, states like Nigeria, Sudan and Libya have been oil producers and have encountered various challenges including resource distribution that has led to violent conflicts.

For countries like Kenya and other East African nations the discovery of oil wells was met with as much excitement as apprehension, mostly due to fears of violent conflicts arising between communities. However the issue of environment preservation has already been pre-conceived by some local and international actors as superior. Much attention has not been placed on the issue mainly because of its covert nature, it being more structural than violent conflict. However this issue has the potential of not limiting the potential growth but also

being exacerbated by other issues such as resource distribution and turning violent. It is thus important for research to be done to provide pre-emptive solutions that can see the state and its citizenry actualise their goals.

1.8 Literature Review International Environmental Policy

Arguably, the environment emerged as an issue in the international political agenda at the 1972 UN Stockholm conference.³³ It was however, later in the twentieth century that environmental issues came to be recognized as more than domestic or even regional.³⁴ With the advent of new sensory and modelling technologies during this time, which increased the capacity of scientists to measure and predict the extent of impact from human related activities on the environment, more especially so for the atmosphere. They were now able to measure the extent of destruction caused by the burning of fossil fuels, or through the emission of other ozone-depleting substances, or long-range air pollution.³⁵ Ozone layer depletion and climate change might not be visible to the naked eye, but their impacts are physically visible and represent the “tragedy of the commons” writ large.³⁶

The increased and transformed state of environmental degradation can also be attributed to economic globalization. In the nineteenth and beginning of the twentieth centuries, colonization, was the global order. Raw materials from Asia and Africa, were used by the

³³ Thomas Bernauer, ‘Managing International Rivers. Global Governance: Drawing Insights from the Environmental Experience’, *MIT Press, Cambridge*, (1997)

³⁴ J.R. McNeill, ‘Something New Under The sun. An Environmental History of the Twentieth-Century World’, *W.W. Norton and Company, New York*, (2000)

³⁵ Paul N. Edwards, ‘Representing the Global Atmosphere: Computer Models, Data, and Knowledge About Climate Change’, in (eds) Clark A. Miller and Paul N. Edwards, ‘Changing the Atmosphere: Expert Knowledge and Environmental Governance’ *MIT Press, Cambridge*, (2001).

³⁶ Hardin Garrett, ‘The Tragedy of the Commons’, *Science* 162 (1968), pp. 1243–8.

Europeans, who were the colonizers to grow their economies. The end of the World Wars signalled a new order, at a time when most colonized countries gained their independence. A freer economic order was established premised on economic growth and free movement of goods and capital. This expedited international economic growth, and in turn increased the rate at which resources were being depleted and as well as an increase in the generation of pollution. The environmental impact of transportation of goods around the world is also significant, increasing pollution en route, and also transporting invasive organisms to new ecosystems.

The 1972 Stockholm Conference in Sweden marked the start of the modern era of international environmental cooperation. Attended by representatives from 114 countries, it put up a framework to outline the issues that were important for the international community, and to create a coordinated legal and political framework which was unanimously agreed so as to resolve the said issues.³⁷ The conference realized:

- i. i. That the environment was an international political agenda, and made it part of the UN's official agenda.
- ii. Protocols as to how environmental goals were to be achieved were also set, integrating the existing body of international environmental laws and treaties. United Nation's Environmental Programme (UNEP) was established whose headquarters is in Nairobi, Kenya.
- iii. The conference is also set the stage for an international debate over the relationship between environmental protection and economic development. At the time, the

³⁷ Louis B. Sohn, 'The Stockholm Declaration on the Human Environment', *Harvard International Law Journal* **14** (1973), pp. 423–515.

conveners of the conference, approached the issue on purely environmental terms, ignoring the economic dimension. However, for the global south the economic aspects of the debate were more critical, and at a time when they had just began to collectively speak at the global level,³⁸ – they introduced this new aspect to the otherwise incipient debate, that would later become the subject of the 1992 Rio conference: that there needed to be a balance between environmental goals and development goals, and that environmental conservation could not be achieved at the expense of the development of developing countries.

From the 1987 report of the World Commission on Environment and Development (also known as the Brundt land Report), through Agenda 21, published at the Rio Summit, to the Millennium Development Goals set by the UN in 2000, the normative framework has been used by activists, policymakers, philanthropists, and the corporate fraternity to indicate their intentions. Due to its vague and ambiguous nature, it is an ideal thought that is open to varied interpretations, its greatest limitation being that it is open for varied it is a meta-norm.³⁹ Other agreements and treaties include the 1985 Vienna convention for protection of the ozone layer and its subsequent protocol the 1987 Montreal protocol were agreed upon for the phasing out the production numerous that are attributed to for ozone depletion.

These problems have become a matter of global concern with the nation states looking for ways to minimise the effects of climate change. UN Framework Convention on Climate

³⁸ Adil Najam, 'Dynamics of the Southern Collective: Developing Countries in Desertification Negotiations', *Global Environmental Politics* 4, 3 (2004), pp. 128–54.

³⁹ Steven Bernstein and Benjamin Cashore, 'Can Non-State Governance Be Legitimate? A Theoretical Framework', *Joint IDDRA, CIRAD and Sciences-Po Research Unit Conference* (Montpellier, France, 2006)

Change (1992)⁴⁰, is one such measure put in place to handle the problem as well as the Kyoto Protocol (1997).⁴¹

The Kyoto Protocol of 11 December 1997 was entered into force on 16 February 2005. At the Convention Of Parties (COP) 7 in Marrakesh, Morocco, in 2001, the rules for the Kyoto Protocol were established. They are referred to as the "Marrakesh Accords." Its commitment period began in 2008 and was completed in 2012. The Kyoto Protocol is an international agreement associated with the UNFCCC, sets emission targets for states. The developed nations have a higher responsibility of reducing their emission targets on the levels of greenhouse gases (GHG). This is because principally, the developed countries who have gone through industrialisation, are deemed responsible for environmental degradation in the last 150 years, and are thus find themselves with a bigger under the principle of common but differentiated responsibilities.⁴²

"Doha Amendment to the Kyoto Protocol" was adopted in Doha, Qatar, on 8 December 2012. The Protocol stipulates that all states must put national structures that their emission targets are achieved. The Protocol also provides other ways for countries to meet their target. The Kyoto mechanisms are three: International Emissions Trading, Clean Development Mechanism (CDM) and Joint implementation (JI)

These mechanisms encourage green investment and increase Parties chances in meeting their emission targets in a cost-effective way. There are provisions for monitoring of the emissions by states in the Kyoto Protocol, as well as accurate records of all trade undertaken. Despite

⁴⁰ See, 'United Nations Framework Convention on Climate Change' (1992)

⁴¹ See, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change' (1997)

⁴² Ibid

the framework of reduction on emissions of GHG being put in place, the cooperation and goodwill of countries has been wanting, more so developed countries with big industries that depend on combustion of fossil fuels to run.

The United States (US) signed the protocol on 12th November 1998, but with stiff opposition from both Congress and Senate, never ratified it, expressing their disapproval of any international agreement that they deemed as unfair to developed states and in support of developing countries, in matters of emission reductions. They argued that ultimately the US's economy would suffer. The United States has been accused of predominantly taking a realist approach towards the issue by safe guarding its interests. For seven years, Russia did not ratify the Kyoto Protocol, posing a challenge for the use of the instrument in reducing GHG emissions. They however ratified it in 2004. The protocol also provided for funding for some developing countries for them to cut their emissions. However most of these countries complained that it was not a good bargain. Following Canada's withdrawal from the protocol on 15 December 2012, Canada, the United States, South Sudan and Andorra are the only UNFCCC Parties that are not party to the Protocol. The Protocol also does not apply to UNFCCC observers Palestine and the Vatican.⁴³

The Kyoto protocol was already being regarded as failure by the time the UN was convening the Copenhagen climate summit in 2009, in Copenhagen. Global emissions have continued to grow. In the past few years, it has been emissions from developed countries especially China that have been the main contribution to greenhouse gas rises. China and United States of

⁴³ See, 'Status of ratification' Retrieved on December 1, 2015 from http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php

America are the number one and two respectively carbon polluters. Thus a climate deal between them is essential in minimising the impact of climate change. The North-South debate ensued with focus being on environmental governance. Developing countries feel aggrieved by actions of hegemonic states that are not considerate to effects of climate change being felt in their countries. Climate change as seen above has caused various calamities in countries that have directly and indirectly affected development. International relations have been manifest as a result with states now convening various meetings to consult on ways of enforcing international environmental laws. These nations depend on international organisations such as the UN to apply pressure to the hegemonic states.

The just concluded Conference of parties conference COP 21 in Paris France December 2015, despite not being able to come up with a substantive way forward, proves the realist nature of states in global environmental politics and how states safeguard their own economic interests in disregard of global environmental states. However the environmental debate pales in light of the new security threats emerging as the global order changes and in a violent way. Samuel Huntington in his bestselling 'The Clash of Civilizations and the Remaking of the World Order', analyses conceptual issues that offer an explanation to the various changes being witnessed in the international political order and forming an hypotheses of what is ahead. This review was followed by a presentation of his own theory on the subject, which is that an increased threat to international peace and security can be attributed to the diversity of cultures.⁴⁴

⁴⁴ Samuel Huntington, 'The Clash of Civilizations and the Remaking of the World Order', *Simon and Schuster, New York*, (1996)

Rodney White, in his ‘North, South, and the Environmental Crisis’, sees environmental security issues in the lenses of global hemispheres. In his view, the sources of conflict are the result of impacts of the environmental issues interacting with other social and economic issues such as population growth and poverty in the Southern Hemisphere.⁴⁵

The concept of environmental security seems to have evolved into a term applied to include a number of issues, the only common element being some form of the word “environment” in their title.⁴⁶ Environmental security can be defined or associated with processes whereby solutions to environmental problems contribute to national security goals.⁴⁷ Notwithstanding the effects that climate change has on the environment and role in conflict, usually caused by human activity; environmental scarcity also is a major cause of conflict and a threat to international peace and security.

These issues are the conceptual issues that have given rise to international environmental governance.

1.9 Research Methodology

1.9.1 Research design

The research will collect qualitative data through a mix of methods involving a combination of desktop research (primary) and field research (secondary). However, the researcher will emphasize on desktop research involving quantitative data.

⁴⁵ White, ‘North, South, and the Environmental Crisis’

⁴⁶ W. Chris King, ‘ Understanding International Environmental Security: A Strategic Military Perspective’, *Army Environmental Policy Institute AEPI-IFP-1100A* (November 2000)

⁴⁷ See ‘Environmental Security’, *USEPA*, (Washington, D.C., 1999)

Data Collection Methods

This survey will involve collection, analysis and use of secondary and primary data.

Qualitative

Secondary data will be used to identify key issues on the topic and way forward. Interviews conducted provide insight into the existing situation.

1.10 Limitations of the Study

This research being primarily qualitative might not provide accurate hypothesis on issues. Research on this area of study is limited as literature on Natural resources and conflict is mostly on violent conflict

1.11 Conclusion

It is well established that there is evident conflict between exploitation of natural resources and international environmental policies. Seeing as it is necessary for states to exploit its resources, in a manner that minimizes harm to the environment, it is important to look into all aspects that are critical in coming up with an approach that would try and achieve a viable balance between the two variables.

The next chapter delves into establishing why international environmental policies are important in international relations and how they affect states environmental policies.

CHAPTER TWO

INTERNATIONAL ENVIRONMENTAL POLICIES AND INTERNATIONAL RELATIONS

2.0 Introduction

Focus is now shifting or has been since the 1970's towards, environmental concern in international politics. International relations scholars have been questioning the role international environmental governance has on international relations. The presence of environmental debate in international relations begs for questions like: What are the factors that attributed to the increase in international global environmental concern, and how do important international actors perceive environmental problems? Why is this concern dynamic in nature? How best are uncertainties and criticism about international environmental change addressed?⁴⁸ Critical to international scholars is identifying what constitutes international environmental politics, and what constitutes governance institutions and regimes.⁴⁹

This focus is now clearly changing. More fundamentally, questions are being raised about the effectiveness of existing international environmental governance architectures, and argue for reconstruction of institutions, norms and regimes so as effectively manage environmental problems. Others argue that there has been a limited outlook in how we identify and categorize institutions and practices of global environmental governance, and urge attention be paid to politics across scales and issue areas that have not been traditionally part of the

⁴⁸Kate O'Neill, 'The Environment and International Relations', *Cambridge University Press, New York*, (2009)

⁴⁹ Ibid

global policy agenda. Ultimately more studies on global environmental governance.⁵⁰ The environment and international relations are not constant in nature, an encouraging reason for researchers and scientists to conduct further research into the relationship between the exploitation of resources by nation states and the existing and potential international environmental policies.⁵¹

These questions offer insights to the growing presence of environmental politics in the international scene. On the question of natural resource based conflicts, attention is also slowly moving away from traditional conflicts that are violent in nature and are resource distribution centric to a more structural conflict, that of environment sustainability. The issue has also been politicized both locally and internationally.

2.1 Background

Ideally international environmental policies are efforts of states to manage environmental problems. Environment sustainability is one of the global commons. Environment issues including biodiversity loss, desertification and deforestation are also regarded as “the tragedy of commons”.⁵² Following Garrett Hardin’s “Tragedy of the Commons” metaphor, resources are vulnerable to over-exploitation or over-pollution. Addressing global commons is made difficult by the fact that there are multiple perpetrators and victims alike, and it is very difficult to allocate responsibility among them. At the same time, the structure of

⁵⁰ Ibid

⁵¹ Ibid

⁵² Garrett Hardin, ‘The Tragedy of the Commons’, *Science* **162** (1968), pp. 1243–8

international regimes on the global commons is based on mutual cooperation by nation states.⁵³

It is scholars like George Kennan, noted as one of the scholars who conceptualized the post-world war order, who brought to focus the issue international environmental governance.⁵⁴ In one of his published works in the 1970's he wrote in 1970 he posits that, in recognition that the ecology of the planet is not contained in national borders, and any harm done to the environment has impact on the entire planet, and this he believed warranted serious concern from the international community.⁵⁵ He argued that the existing structure of domestic, regional and international agencies was not well equipped in managing the world's environmental problems.⁵⁶ He proposed an organization of at the top ten most industrialized nations, capitalist and communist to handle an international threat. He initially suggested the agency be named the International environmental Agency. He envisioned this agency as independent from political negotiations of states but rather an organization run by technocrats, scientists, environmentalists and experts who were not allied to any state's interests, but were in support of the protection of the global environment. However political support would be crucial for the inception of the agency, but exclude any state interference in its operations.⁵⁷

His idea of an agency deemed independent of influence from states, would start the journey of global environmental governance. His paper was written to advice delegates attending the

⁵³Kate O'Neill, 'The Environment and International Relations,'

⁵⁴ Ibid

⁵⁵ Ibid

⁵⁶ Ibid

⁵⁷ Ibid

1972 Stockholm, United Nations Conference on Humans and the Environment (UNCHE). At that point in time, the UN was trying to expand its mandate in global environmental governance. The conference convened delegates from 114 countries, with the aim of putting up architecture that will deal with global environmental issues, not just for the current situation at hand but also for future generations.

Kennan's vision represents a highly technocratic form of governance: governance without compromise or political bias or interference, but through impartial expertise.⁵⁸ The system of global environmental governance that emerged post-Stockholm, however, was far more political, and decentralized. The United Nations Environment Programme (UNEP) established in the 1972, whose headquarters are in Nairobi Kenya, has since initiated many negotiations and ultimately Multi-lateral Environmental Agreements (MEA), this being the most frequently used instrument in international environmental governance.⁵⁹

Since 1920, there have been more than 140 multilateral environmental agreements (MEAs) half of which were created since 1973.⁶⁰ This number could be higher, if protocols, treaty and other changes to existing agreements are included in the count. Amendments. Already there are three or more states are party to legally binding environmental commitments over 700 times.⁶¹

⁵⁸ Kate O'Neill, 'The Environment and International Relations,'

⁵⁹ Ibid

⁶⁰ Peter M. Haas, 'Environment: Pollution, Managing Global Issues: Lessons Learned', Edited by P.J. Simmons and Chantal de Jonge Oudraat, *Washington DC: Carnegie Endowment for International Peace* (2001)

⁶¹ Ronald B. Mitchell, 'International Environmental Agreements: A Survey of Their Features, Formation and Effects', *Annual Review of Environment and Resources* **28** (2003), pp. 429–61

These include binding agreements over the trade in endangered species, the protection of biological diversity, the trade in hazardous wastes, and ozone layer depletion.

The most high-profile international instrument created was one on the issue of climate change, the 1997 Kyoto Protocol. It sets a clear example of how challenging it is to implement Multi-lateral Environmental Agreements, that are dependent on mutual cooperation. The protocol has suffered withdrawals from states such as the US and Canada, and has been criticized for being ineffective in managing climate change, despite it entering force in 2005. There are two different views that dominate the study and practice of international environmental policies.⁶²

The first is one of failure. The initiative of states taken in the past two decades, were steps taken to mitigate the growing phenomenon of global environmental problems. Attempts that have largely failed.⁶³

This view is based on the premise that most states perceive treaties and other instruments created to manage international environmental issues are weak in structure and therefore do not amount to much,⁶⁴ the conflict between Northern (developed) and Southern (developing) countries,⁶⁵ the “summit fatigue” a consequence of the increase of international conferences

⁶² Kate O’Neill, ‘The Environment and International Relations,’

⁶³ James Gustave Speth, ‘Red Sky at Morning: America and the Crisis of the Global Environment’, *New Haven CT: Yale University Press*, (2004)

⁶⁴ Lawrence E. Suuskind, ‘Environmental Diplomacy: Negotiating More Effective Global Environmental Agreements’, *New York: Oxford University Press*, (1994)

⁶⁵ Anil Agarwal, Narain Sunita, and Sharma Anju, eds, ‘Green Politics’, *New Delhi: Center for Science and Environment*, (1999)

around MEAs,⁶⁶ and the extent to which international economic regimes rank higher than those of environmental agreements.⁶⁷ The 1972 Stockholm initiative is stalling, despite being set in motion,⁶⁸ and new tools and institutions are needed to address these issues with a lot more urgency and certainty at the international level.

A second narrative argues that we have too narrow perception and approach on global environmental issues, and that less enthusiasm should be awarded the traditional actors in global environmental governance, so as to look beyond the international environmental politics and diplomatic processes that compromise on the support for environmental protection.⁶⁹ They propose a much more multi-faceted and democratic process that includes non-traditional actors in international actors, such as, environmental activists, Multi-National Corporations (MNCs) and community groups.⁷⁰

This perspective contradicts the dominant ideology that nation states are the top decision makers and are key in all matters international relations and by extension international environmental management, and urges for a more decentralized approach that is more inclusive to other international actors.⁷¹

⁶⁶ Stacy VanDeveer, 'Sea Changes and State Sovereignty. Saving the Seas: Values, Scientists, and International Governance', Edited by Anthea L. Brooks and Stacy VanDeveer, *College Park MD: Maryland Sea Grant*, (1997) 'Green Fatigue', *Wilson Quarterly* (2003), pp. 55–59

⁶⁷ Ken Conca, 'The WTO and the Undermining of Global Environmental Governance', *Review of International Political Economy* **7.3** (2000), pp.484–94

⁶⁸ Ken Conca, 'Environmental Governance after Johannesburg: From Stalled Legalization to Environmental Human Rights?' *Journal of International Law & International Relations* **1.1–2** (2005a), pp. 121–38

⁶⁹ Ken Conca, 'Governing Water: Contentious Transnational Politics and Global Institution Building', *Cambridge MA: MIT Press*, (2006)

Paul Wapner, 'World Summit on Sustainable Development: Toward a Post-Jo'burg Environmentalism', *Global Environmental Politics* **3.1** (2003), pp. 1–10

⁷⁰ Kate O'Neill, 'The Environment and International Relations,'

⁷¹ Ibid

However for anything substantive to be achieved, one must understand the ideology behind the current situation. This is critical if any steps will be taken in finding a better approach in international environmental governance.

2.2 International Environmental Governance Conceptual Issues.

How states and non-state actors approach environmental issues is dependent on the ideological approach. International environmental policies have and are laid out, but their implementation has proved a challenge mainly because of their conceptual architecture.

International environmental policies are derived from the ideological basis of mutual cooperation. Like any issue of global concern, approach is key in any policy making and implementation. Global environmental governance has not been achieved, due to key ideological differences. International environment policies though mutually created are not mutually achieved. This all falls back on politics and international relations.

A popular view in international relations theory, argues that nation states are only amenable to cooperate if and when their interests and goals are going to be achieved in the international system. This is the main tenet of realism theory that contradicts the liberalist or institutional view of international relations that posits states are amenable to cooperation as benefits of the international community are important, to individual states as well. It is however important to realize that states' interests influence the decision making and implementation of international environmental policies.

2.2.1 Realism

Realism theory states that the international system is anarchic due to lack of a central enforceable authority; therefore each state guards its interests.

For realists, international anarchy is unchecked, and that explains states' unwillingness to cooperate to solve global problems. For realists, national military and economic interests are paramount to any other interests more so international interests. Most states are motivated to be the reigning hegemony in militaristic and economic terms alike. In their view, the state is the prime actor in any decision making process and implementation of the outcome of these processes, other actors such as international organizations are irrelevant as their role is irrelevant.

2.2.2 Liberalism

Liberal theorists – or, in their latter-day variant, neoliberal institutionalists – have a different view to international relations, one of cooperation.⁷² They argue that countries have enough incentive to work together, in recognition of the state of interdependence among states for international development, peace and security. Temptation by states to cheat on mutual agreements is the biggest challenge for neo-liberalists when it comes to international governance, due to the lack of an enforceable authority and the sovereign nature of states. Thus, any state can free-ride on an international agreement, and receive the full benefits such an agreement without paying any costs of adjustment. Therefore, for neoliberal-institutionalists the best way to address this issue is by integrating non-state actors in international environmental governance.

⁷² David A. Baldwin, ed, 'Neorealism and Neoliberalism: The Contemporary Debate', *New York: Columbia University Press*, (1993)

There certainly is no hegemonic or any other state for that matter who are willingly amenable to mutual environmental cooperation. However this general dismissal, undermines the influence of power politics in international environmental governance.⁷³ This can be done by the ingenuity of bargaining power among states. There has been development of new theories that give new ideas on the question of international environmental politics.

2.2.3 Green Theory and Globalization Theory

Green political theorists like many globalization theorists and historical materialists, challenge the existing structures of the international system, but, in this case, posit alternatives based more on ethics of sustainability, justice, and ecosystem harmony.⁷⁴ Global political ecologists are crusaders of global justice and inequality.⁷⁵ There are underlying problems of over-consumption, particularly in the wealthy North, and growing global inequalities between rich and poor as a major, but unaddressed, driver of global environmental degradation.

Due to the anarchic nature of international system, it is prudent for policy makers to be aware that the best way to approach states is by providing incentives that will entice states to be willing to cooperate, and resist to free-ride on mutual agreements.

They also on the other hand have to realize that the using a multi-faceted approach will ensure acceptable results. The use of non-state actors in decision-making processes will

⁷³ Ian H. Rowlands, 'Classical Theories of International Relations: International Relations and Global Climate Change', Edited by Urs Luterbacher and Detlef F. Sprinz, *Cambridge MA: MIT Press*, (2001)

⁷⁴ Robyn Eckersley, 'Environmentalism and Political Theory: Towards an Ecocentric Approach', *London: UCL Press*, (1992)

⁷⁵ Wolfgang Sachs, ed, 'Global Ecology: A New Arena of Political Conflict', *London: Zed Books*, (1993)

further increase the chances of their being support for international environmental policies created.

2.3 Actors in International Environmental Politics

The implementation of environmental policies is not only challenged due to the conceptual architecture, but also because responsibilities for actors in international relations are not clearly defined. No actor is bound or punished for lack of action on environmental issues. It is important to recognize that actors in international environmental governance are critical for the creation and implementation of international environmental policies

International environment policies are created and are meant to be implemented by various actors. There are various actors who are involved in the creation and implementation of these policies.⁷⁶

2.3.1 Nation States

The only actor with authority to make any decision in international politics. It is only government representatives who have authority to vote for any treaty or form of legislation as well as sign or enforce them.⁷⁷ Only, through the sovereign authority of states, are governments enabled to enforce environmental treaties and other norms and regimes. Governments also have various resources at their disposal including military and economic to enforce these regulations.⁷⁸

⁷⁶ Kate O'Neill, 'The Environment and International Relations,'

⁷⁷ John M. Hobson, 'The State and International Relations', *Cambridge: Cambridge University Press*, (2000)

⁷⁸ Kate O'Neill, 'The Environment and International Relations,'

2.3.2 International organizations

International governmental organizations (IGOs) are organizations created by states to manage conflicts and general interaction between states in a particular framework that also provides a forum for states to make decisions on various disputed and conflictual issues. IGOs tread the border between categories of “state” and “non-state” actors. While they are supposed to represent the collective will of their member states, they also have the capacity to set and adopt their own agenda apart from the ones of member states.⁷⁹ However many question their autonomy to handle global issues and more so environmental problems seeing as nation states are ultimately responsible for decision making.⁸⁰ There is also the matter of resources, as most IGOs are small in terms of budget, personnel, and it becomes even challenging for them to fulfil their mandate.⁸¹

2.3.3 NGOs, and global environmentalist groups

These could be a coalition of groups within a state or beyond national or regional borders, who are advocates for environmental protection. These groups are important actors in international environmental governance not only because they bring attention to environmental issues but also because they are key in the direct or indirect governance of

⁷⁹ Ibid.

⁸⁰ Michael N. Barnett and Martha Finnemore, ‘The Politics, Power, and Pathologies of International Organizations’, *International Organization* (1999), pp. 699–732

⁸¹ Richard Blackhurst, ‘The Capacity of the WTO to Fulfill Its Mandate: The WTO as an International Organization’, Edited by Anne O. Krueger, *Chicago: University of Chicago Press*, (1998)

environmental issues.⁸² They are also critical in the implementation stage of agreements, as they put pressure on individual states to implement international treaties.⁸³

2.3.4 Corporations and the private sector

These are the most controversial actors in international environmental politics. This is because some argue that they are the biggest perpetrators of environmental degradation. As private economic actors, they are involved in the direct extraction of natural resources, which puts them responsible for the precautionary measures and waste management activities aimed at protecting the environment. Efforts some companies do not make or do, but poorly. Many also blame their undue political and economic influence which protects them from any form of accountability. Multi-National corporations (MNCs), have attracted the attention of many critics mainly environmental activists.⁸⁴ MNCs can and do influence countries' decisions not to ratify certain protocols. Exxon Oils an American MNC is said to have influenced the US under President George Bush not to sign the Kyoto protocol.

2.3.5 Scientists, expert groups, and knowledge holders

The Intergovernmental Panel on Climate Change (IPCC), is a group of scientists and experts on climate change who are instrumental in research in that area. This group is among many of who contribute to the debate of international environmental management and ultimately

⁸² Kate O'Neill and Stacy VanDeveer, 'Transnational Environmental Activism after Seattle: Between Emancipation and Arrogance, Charting Transnational Democracy: Beyond Global Arrogance', Edited by Janie Leatherman and Julie A. Webber. *New York: Palgrave Macmillan*, (2005)

⁸³ Sanjeev Khagram, James V. Riker, and Kathryn Sikkink, eds, 'Restructuring World Politics: Transnational Social Movements, Networks, and Norms', *Minneapolis: University of Minnesota Press*, (2002)

⁸⁴ Robert Gilpin, 'U.S. Power and the Multinational Corporation: The Political Economy of Foreign Direct Investment', *New York: Basic Books*, 1975. 'Global Political Economy: Understanding the International Economic Order', *Princeton: Princeton University Press*, (2001)

the creation of international environmental policies. The organization of about 3,000 scientists is among of the most notable organizations as it won the Nobel Peace Prize in 2007, alongside the former American Vice President Vincent Al Gore.⁸⁵

2.3.6 The broader public and individual leaders

More often than not, the broader public is not involved in global environmental governance. An issue that critics argue that cooperation of states on environmental issues is not a topic of interest to the broader public and that it has little or no impact to their everyday lives. However at times public opinion can shape the agenda and influence the actions of a state towards certain global environmental issues. Many critics argue that Prime Minister Kevin Rudd was elected in 2007, based on his promise to ratify the 1997 Kyoto Protocol, which was popular with a majority of the Australian electorate.⁸⁶

Some charismatic individuals like the late Professor Wangari Maathai, have also influenced debate and creation of environmental policies both domestically and internationally. She is particularly credited with a campaign for social justice, democracy and sustainable development. The late professor who was a Nobel laureate accepted her prize urging states to promote viable economic, social and political activities that were not only beneficial to their citizens but also conservatory to the environment.⁸⁷

⁸⁵ Kate O'Neill, 'The Environment and International Relations,'

⁸⁶ Ibid.

⁸⁷ 'The Green Belt Movement: Nobel Peace Prize', Retrieved from <http://www.greenbeltmovement.org/wangari-maathai/the-nobel-peace-prize>

2.4 International Environmental Problems

During the 1960s and 1970s as the world began to progress technologically, scientists and experts also realized that some of the activities using the advanced technology were seriously harming the environment.⁸⁸

UN is responsible for organizing conferences that discuss environmental issues. These conferences are aimed at raising international awareness, setting important environmental norms, principles, and goals, and establish procedural frameworks in order to meet these goals.⁸⁹

An environmental problem is categorized as “international,” once its effects are felt beyond national borders.⁹⁰

Some scientists are of the idea that the earth is a single ecosystem, and anything harming a section of the planet harms the whole planet.⁹¹ However the generalization of environmental problems does not take into consideration that decision making processes are not part of a single unit. States are bound to put their interests first.

The UN and other international organizations concerned with environmental problems realizing these shortcomings have categorized environmental problems depending on how feasible they are for mutual cooperation.⁹² Issues such as climate change are considered

⁸⁸ Ulrich Beck, 'Risk Society: Towards a New Modernity', *London: Sage*, (1992)

⁸⁹ Gill Seyfang, 'Environmental Mega-Conferences from Stockholm to Johannesburg and Beyond', *Global Environmental Change* **13** (2003), pp. 223–8

Peter M. Haas, 'UN Conferences and Constructivist Governance of the Environment', *Global Governance* **8.1** (2002)

⁹⁰Oran R. Young, 'International Governance: Protecting the Environment in a Stateless Society', *Ithaca: Cornell University Press*, (1994).

⁹¹ Frederick H. Buttel, Ann. P. Hawkins, and Alison. G. Power, 'From Limits to Growth to Global Change: Constraints and Contradiction in the Evolution of Environmental Science and Ideology', *Global Environmental Change* **1.1** (1990), pp. 57–66

⁹² Kate O'Neill, 'The Environment and International Relations,'

amenable for cooperation even though it is difficult to agree on a policy. However issues such as the international trade in hazardous wastes, as it is very difficult for states to be convinced to produce less waste or minimize waste produced.⁹³ James Lovelock who is associated with concepts such as bioregionalism and the Gaia Hypothesis, tries to address these issues of the practice of dumping of hazardous waste in poorer countries who face the impact of these practices.⁹⁴

2.4.1 Trans-boundary environmental problems

These are problems are those that cross, from country to country. Examples of trans-boundary environmental externalities include long-range trans-boundary river pollution, and the global trade in hazardous wastes or air pollution such as acid rain and in endangered species.⁹⁵ Some of the effects from this activities, especially cross border are not intentional, but the impact is felt none the less. These problems are known as global commons problems,⁹⁶

2.4.2 Local-cumulative problems

These issues can be a little harder to define explicitly as global environmental issues, and have, therefore, been less often addressed by formal treaty arrangements.⁹⁷ While the effects of local-cumulative environmental problems tend to be felt most immediately within national

⁹³ Frederick H. Buttell, Ann. P. Hawkins, and Alison. G. Power, 'From Limits to Growth to Global Change: Constraints and Contradiction in the Evolution of Environmental Science and Ideology', *Global Environmental Change* **1.1** (1990), pp. 57–66

⁹⁴ James Lovelock, 'Gaia: A New Look at Life on Earth', *Oxford: Oxford University Press*, (2000)

⁹⁵ Kate O'Neill, 'The Environment and International Relations,'

⁹⁶ Dieter Helm and David Pearce, 'Economic Policy Towards the Environment', *Oxford Review of Economic Policy* **7.4** (1990), pp. 1–16

⁹⁷ Ken Conca, 'Governing Water: Contentious Transnational Politics and Global Institution Building', *Cambridge MA: MIT Press*, (2006)

borders, their ultimate impact is felt beyond the borders affecting processes such as the climate.⁹⁸ They are, also, often exacerbated or transformed by processes of globalization. Biodiversity is an example of such problems.

Though biodiversity are located within national borders they become international because of what the biology scientist term as loss of species and ecosystems, which affects the entire planet. This they plead is also a loss of culture, whether or not you would visit the Amazon or ever see a Panda. They also argue, these species could be a source of income through tourism, as well as the fact that some plant species could be discovered to have medicinal utility in the future.

2.4.3 Commons, trans-boundary, and local-cumulative issues

Box 2.1 outlines the definitions and main impacts of the international environmental problems associated with major international negotiating processes and treaties.⁹⁹ While most negotiations have a successful outcome, in that a treaty or agreement (or series of treaties, as is the case with biological diversity) has been successfully signed and implemented, this is not the case across the board.¹⁰⁰ The most notable example of an international issue area where treaty negotiations have failed is in combating deforestation.¹⁰¹

⁹⁸ Kate O'Neill, 'The Environment and International Relations,'

⁹⁹ Kate O'Neill, 'The Environment and International Relations,'

¹⁰⁰ Ibid'

¹⁰¹ Ibid

Figure 2.1 Major international environmental problems

Box 2.1 Major international environmental problems and associated international agreements

Climate Change

- Kyoto Protocol (1997), UNFCCC (1992)

Stratospheric Ozone Depletion

- Montreal Protocol (1987), Vienna Convention for the Protection of the Ozone Layer (1985)

Long Range Trans-boundary Air Pollution

- Air pollution – notably emissions of sulfur dioxide and oxides of nitrogen – that originates in one country, but is carried, often long distances, into another.
- Impacts: particularly a problem when it falls as acid rain, causing forest damage, damage to buildings, and water pollution.
- Convention on Long Range Trans-boundary Air Pollution (1979)

Biodiversity Loss and Conservation

- Convention on Biological Diversity (1992)

Deforestation and Unsustainable Use of Forest Resources

- The clearing or destruction and degradation of global forest cover
- Impacts: on ecosystem health and biodiversity, and on atmospheric greenhouse gas

concentrations, livelihoods of forest dwellers

Desertification

- UN Convention to Combat Desertification (1994)

Persistent Organic Pollutants (POPs)

- Manufacture, use, circulation, and disposal of chemicals that are highly toxic and do not break down easily in the environment, bio-accumulating in human and animal tissue, often traveling long distances.
- Impacts: on human and animal health (e.g. cancer, reproductive systems), ecosystems

Hazardous Waste Trading

- Basel Convention on the Trans-frontier Movement of Hazardous Wastes and Their Disposal (1989)

Rivers and Lakes

- More than 200 river or lake basins are shared by more than one country, areas that include 40% of the world's population. Trans-boundary water flows are subject to diversion, overuse, and other flow disruptions
- Impacts: flow disruptions and river pollution often disproportionately affect downstream states, but also disrupt regional navigation, agriculture, and so on.
- Cooperative agreements are usually regional or bilateral: there are more than 2000 agreements dealing at least partially with trans-boundary water issues, dating from

1616.

Whaling

- Over-exploitation of whale stocks worldwide
- Impact: many species on the brink of collapse by the mid-20th century.
- International Convention for the Regulation of Whaling (IWC; 1946), initially set up to regulate, not ban, whaling, 1985 moratorium banned all whaling except for scientific research purposes and other exceptions

Marine Environment and Resource Degradation

- Problems include managing fish stocks, controlling ocean dumping and oil pollution at sea
- Impacts: fish stock collapse, loss of marine biodiversity, coastal and ocean pollution
- UN Convention on the Law of the Sea (1982)

Sources: Kate O'Neill 'Environment and International Relations', Levy 1993; Bernauer 1997, pp. 157–8; Humphreys 2003; Watson et al. 1998, websites of UNEP and individual treaties (www.unep.org).

These sorts of issues do not easily lend themselves to the traditional model of treaty-based global environmental governance¹⁰²: either national interests are too strong and too much in conflict, or economic interests are able to fight environmental regulations.¹⁰³ Sometimes, activists decide to fight in the global human rights arena, rather than the environmental. Also,

¹⁰² Ibid

¹⁰³ Kate O'Neill, 'The Environment and International Relations,'

these issues are often too heterogeneous in their form and impacts across, and even within, different countries to be neatly packaged as a manageable global issue.¹⁰⁴ This does not mean that forms of “global governance” are entirely absent from these arenas: these are exactly the sorts of issues that the scholars who are seeking to broaden our perspective on what constitutes global environmental governance address.

2.4.4 Issue linkage: Environmental change and human security

The environment is not an issue in isolation, it interacts with other issues of global concern such as health, development, security and economy. Global environmental degradation and or change has some very serious implications for human security in all its dimensions.¹⁰⁵

Human security is a multi-faceted concept. Traditional notions of security – particularly in international relations theory – focus on conflict and war, either within or between countries. In 1994, the UN¹⁰⁶ introduced a broader conception of human security, based on “freedom from want” and “freedom from fear,” which encompassed the following dimensions of security: economic (basic income and employment), food, health (access to healthcare, freedom from infectious disease), environmental, personal (physical safety), community (including cultural rights), and political (basic civil rights). This notion of human security has subsequently become part of international development and human rights initiatives, in much the same way that sustainable development came to underlie global environmental debates: at once easy to agree with and hard to operationalize in practice and in theory.¹⁰⁷

¹⁰⁴ Kate O’Neill, ‘The Environment and International Relations,’

¹⁰⁵Sanjeev Khagram and Saleem Ali, ‘Environment and Security’, *Annual Review of Environment and Resources* **31** (2006), pp. 395–411

¹⁰⁶ ‘United Nations Development Programme. Human Development Report, 1994’, *New York: Oxford University Press*, (1994)

¹⁰⁷ Roland Paris, ‘Human Security: Paradigm Shift or Hot Air?’, *International Security* **26.2** (2001), pp. 87–102

The role of environmental degradation in causing armed conflict has long been a subfield of international environmental politics, and, arguably, in far older theories of the causes of war and revolution, not to mention accounts of the rise and fall of civilizations.¹⁰⁸ Drought, water scarcity, land degradation may lead to competition for these scarce resources and in turn result in conflict, and ultimately violent conflict.¹⁰⁹ Conversely, countries with an abundance of resources may find themselves in a different kind situation, that of the resource curse or paradox of plenty, where these resources attract competition for control and ultimately in conflict. More often than not, violent conflict.¹¹⁰ The violence that has characterized parts of Nigeria, particularly the oil-rich Niger Delta, is one example of how resource abundance can lead to violence.¹¹¹ Cooperation between states over scarce resources or other environmental problems minimize tensions.¹¹² All in all there are mechanisms that exist that explain how climate change can cause conflict, or the scarcity of land lead to a civil war, that spills over to the neighbouring countries.¹¹³

¹⁰⁸Thomas F Homer-Dixon, 'On the Threshold: Environmental Changes as Causes of Acute Conflict', *International Security* **16.2** (1991), pp. 76–116

Daniel Deudney, 'The Case against Linking Environmental Degradation and National Security', *Millennium* **19.3** (1990)

Peter H. Gleick, 'Water and Conflict: Fresh Water Resources and International Security', *International Security* **18.1** (1993), pp. 79–112

Jared Diamond, 'Collapse: How Societies Choose to Fail or Succeed', *New York: Viking Press*, (2005)

¹⁰⁹ Ibid

¹¹⁰Terry Lynn Karl, 'The Paradox of Plenty: Oil Booms and Petro-States', *Berkeley: University of California Press*, (1997)

Michael Ross, 'A Closer Look at Oil, Diamonds, and Civil War', *Annual Review of Political Science* **9** (2006), pp. 265–300

Erika Weinthal, and Pauline Jones Luong, 'Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth', *Perspectives on Politics* **4.1** (2006), pp. 37–55

¹¹¹ Michael Watts, 'Petro-Violence: Community, Extraction, and Political Ecology of a Mythic Commodity Violent Environments', Edited by Nancy Lee Peluso and Michael Watts, *Ithaca: Cornell University Press*, (2001)

¹¹² Miriam R. Lowi, 'Bridging the Divide: Transboundary Water Disputes and the Case of West Bank Water', *International Security* (1993)

¹¹³ Ted Gurr, 'On the Political Consequences of Scarcity and Economic Decline', *International Studies Quarterly* **29.1** (1985), pp. 51–75

The impacts of the extraction and production of natural resources is dependent on the quantity and vulnerability of the said resources.¹¹⁴

Elizabeth Chalecki in her paper *Environmental Security: A Case Study of Climate Change* begins by explaining that there has been disregard of the environmental security nexus. Her paper thus discusses the relationship between the environment and security. Her arguments are directed towards the US army as she creates awareness towards what she terms as a growing security concern.¹¹⁵ She argues that the potential of environmental issues to threaten national security whether or not it is open conflict, could destabilize a nation.

For the social, political and especially economic structures of any state to remain viable and vibrant, the environment and its protection must be taken into consideration¹¹⁶ She explains how human economic activity that emit Green House Gases can cause climatic and environmental changes which may generate resource scarcity, that leads to political disputes, ethnic tensions that may spill over to regional conflict and ultimately global conflict.¹¹⁷

Given the interconnected nature of the world's ecosystems, there are, of course, multiple ways in which environmental problems affect each other. Climate change is likely to lead to further loss in biodiversity, desertification, and loss of arable land and forest ecosystems. Further, how these problems are framed within international regimes generates¹¹⁸ further

¹¹⁴Thomas HomerDixon and Valerie Percival, 'Environmental Scarcity and Violent Conflict: The Case of South Africa' *American Association for the Advancement of Science and the University of Toronto* (1995)

¹¹⁵ Elizabeth L. Chalecki, 'Environmental Security: A Case Study of Climate Change', *Pacific Institute for Studies in Development, Environment, and Security* (2002)

¹¹⁶ Elizabeth L. Chalecki, 'Environmental Security: A Case Study of Climate Change'

¹¹⁷ Ibid

¹¹⁸ Sikina Jinnah, 'Managing Overlapping Regimes: International Bureaucratic Agency or Just More Red Tape?', *University of California at Berkeley*, (2008)

linkages, both synergistic (mutually reinforcing) and conflictual.¹¹⁹ For example, the common ground in terms of underlying rules and norms has already led to functional cooperation among the various component treaties of the biodiversity regime and the marine related conventions under the framework of the UN Convention on the Law of the Sea.

The emphasis on ecosystem preservation within the CBD has led to strong interactions between the CBD and the Intergovernmental Forum on Forests, with the potential for the CBD being used to enact international rules on forest preservation.

2.5 Conclusion

The above sections discuss global environmental problems that are already on, or are proposed for, the international environmental policy agenda. We have seen that often the definition, or framing, of these problems is a political process. Another angle that sheds light on the problems of the global environment, and how they are defined and acted upon, is to examine the issues that clearly have both global and environmental implications but which have not, as yet, entered the traditional international environmental policy process.

Oran R. Young, 'Institutional Linkages in International Society: Polar Perspectives', *Global Governance* **2.1** (1996), pp. 1–24

Oran R. Young, 'The Institutional Dimensions of Environmental Change: Fit, Interplay and Scale', *Cambridge MA: MIT Press*, (2002)

Henrik Selin and Stacy D. VanDeveer, 'Mapping Institutional Linkages in European Air Pollution Politics', *Global Environmental Politics* **3.3** (2003), pp. 14–46

Kristin G. Rosendal, 'Overlapping International Regimes: The Case of the Intergovernmental Forum on Forests (IFF) between Climate Change and Biodiversity', *International Environmental Agreements* **1** (2001), pp. 447–68

Kristin G. Rosendal, 'Impacts of Overlapping International Regimes: The Case of Biological Diversity', *Global Governance* **7** (2001), pp. 95–117

Kal Raustiala and David G. Victor, 'The Regime Complex for Plant Genetic Resources', *International Organization* **58.2** (2004), pp. 277–309

Sebastian Oberthur and Thomas Gehring, 'Institutional Interaction in Global Environmental Governance: The Case of the Cartagena Protocol and the World Trade Organization', *Global Environmental Politics* **6.2** (2006), pp. 1–31

¹¹⁹ Kristin G. Rosendal, 'Overlapping International Regimes: The Case of the Intergovernmental Forum on Forests (IFF) between Climate Change and Biodiversity'

Examples include supplies of, and access to, fresh water for household, agricultural, and industrial use, the environmental impacts of industrialized agriculture, mining, and oil exploration by multinational corporations, invasive species prevention, and nuclear issues (transport, storage, and disposal of nuclear waste, and nuclear accident prevention). They also include what many see as main drivers of global environmental change: population and consumption.

These discussions affect individual states environmental policies in one way or the other. However of greater importance is the North-South Debate on international environmental policies and how this has affected international relations between developing nations and developed nations and what this means for environmental protection. The next chapter examines these issues in detail.

CHAPTER THREE

GLOBAL NORTH AND SOUTH INTERESTS IN SUSTAINABLE DEVELOPMENT

3.1 Introduction

State's interests are many and vary, but for most states, economic and military interests overshadow other interests including environmental interests. This provides a precipice for conflict for those whose priority are environmental interests, who mainly are non-state actors. Notably, states have held their economic interests in higher esteem than those of environmental sustainability. These interests have not only raised concern in nation states but also internationally. Debate on economic development has taken centre stage on the international political scene. The debate has pitted the northern countries against the global south, with the latter feeling that they are being forced to put environmental interests before those of economic development.

In international environmental politics, the North-South debate is growing with either side holding their ground. The North being the developed countries and the South the developing countries.¹²⁰ The current international environmental policies set, are stricter on developed countries especially when emission of GHG gases are concerned, measures they wish would be applied to the developing countries as well. The North also feels that the South, should be cognizant of the mistakes made by the developed countries during industrialization so as not to degrade the environment further.¹²¹

¹²⁰ Armin Rosencranz, Paul Kibel, and Kathleen D. Yurchak, 'The Principles, Structure, and Implementation of International Environmental Law', *The University Corporation for Atmospheric Research*, (1999)

¹²¹ Ibid

Views that, are not appreciated by the developing countries. First of all, they argue, that the North achieved industrialization through resources extracted by the North. They argue that the North should not be quick to point out sustainable development or exploitation of natural resources, when they did it in unregulated manner. They also find it hypocritical for the North to deny poorer countries the chance to attain development and lift their citizens from poverty.¹²² The developing countries have said if more stringent measures were to be placed on them, then developed countries should transfer their technology to them and to offer them financial assistance.¹²³

3.2 The North South Environment Debate

After the World Wars, there has been a significant increase for the extraction and production of natural resources for economic development, especially so with the advancement in technology. At the time colonization was coming to an end in most states and many developing countries were also looking at ways to industrialize so as to grow their economies.¹²⁴ Concern for environmental degradation was not an important issue, until scientists were able to prove that human activities were harming the environment in a very serious way.

Due to concerns of various critics, scientists and experts, on the impact economic activities were having on the natural environment, the concept of sustainable development was taunted

¹²² Ibid

¹²³ Ibid

¹²⁴ Yifan Ding, 'Impacts of Affluence and Overexploitation of Natural Resources', *Institute of World Development, Development Research Centre of State Council, People's Republic of China*, (2009)

as a solution to this problem. One of the main areas of concern is the protection of biodiversity.¹²⁵

The loss of biodiversity is mainly caused by human activities usually for economic gain, this is despite the fact that its existence is crucial for humanity. Some animal species have become extinct and other's existence is being threatened because of the overexploitation of natural resources in their natural habitat. An unfortunate scenario that is true as well for plant species, with land transformation as well, being a contributing factor.¹²⁶

With increasing populations all over the world, deforestation has worsened to create room for both large scale and small scale agriculture. The rate at which tropical forests are diminishing is quite alarming as well.¹²⁷

At the moment, developing countries have been accused of the likelihood of destroying the environment, although the developed countries are accused of causing enough damage during the industrialization era. It is this era that has given realization to the developed countries that uncontrolled human activities for economic growth can and have caused harm to the environment. This has understandably given support to debate on economic development and the impact it has on the environment. Pressure from Non- Governmental Organisations, environmental advocacy groups and general public has further fuelled the debate at both the local and international level. Some governments, local agencies, as well as corporations have

¹²⁵ Ibid

¹²⁶ Ibid

¹²⁷ Ibid

taken into account the impact economic activities has on the environment and has led them to take measures to prevent and mitigate environmental degradation.¹²⁸

For the global South however, environmental protection is not as big a concern as it is for developed countries. Critics ask why the developing nations refuse to draw lessons from history and the current state of affairs. Why they do not seem as enthusiastic about sustainable development as fronted by the green enthusiasts?

Similar circumstances during the age of industrialization in Europe are the present conditions as to which developing countries are now pushing for industrialization. Many argue as well that the combination of factors such as poverty, illiteracy, poor technology are said to contribute to the lack of enthusiasm for these states to prioritize environmental protection over exploitation of natural resources. Some critics argue that already, some developing countries are involved in activities that threaten the natural environment. The position of developing countries in international economic division is at a disadvantage, as they are currently the producers of raw materials, and are not able to add any value to these products. They are also not able to determine the prices of their products and have to import back the processed products. These events motivates them further to industrialize, in the hopes of tipping the scales of international economic division in their favour.¹²⁹

¹²⁸ Ibid

¹²⁹ Ibid

These hopes are based on the fact that the only comparative advantage is the abundance of natural resources. Other factors of production such as advanced technology, skilled labour and capital are all wanting. After World War II most developing countries attained their independence, and post-independence most of them maintained trade links with their former colonial masters.¹³⁰

Efforts of developing states to achieve economic development through international trade have not only been challenged, but critics are now rethinking the conceptual ideas behind the role of international trade in driving economic growth. Some countries are not only in foreign debt but have an exchange rate crisis. Many critics argue that the old trade models built during colonial times are the main reason for these state of affairs, as it is an old and unequal and unfair model, where the developing countries which are the source of the raw materials were getting a raw deal from the trade taking place.

Apart from this criticism of international trade, a different development strategy was created, one of national industrialization, it is also known as import-substituting strategy. This strategy was aimed at promoting national manufacturing and value addition of raw materials. For developing countries they would need to build industries with the latest technology, a lot of capital and skilled labour, resources that most developing nations do not have. This thus means that these countries have to export more raw material in efforts to raise enough capital

¹³⁰ Ibid

to build and equip industries. For there to be a large quantity of exports, there is overexploitation of natural resources. Activities that affect the environment negatively.¹³¹

This paradoxical situation is worsening, because most of the developing countries are resulting to produce more of raw materials that have better economic value. For example, Cote d'Ivoire has cleared a lot of its tropical forests, in order to make way for large scale cacao and coffee farming. All in all there was serious environmental degradation that happened in the 1970s in Cote d'Ivoire. It therefore can be argued that the natural environment can and has been destroyed for the benefit of economic development.¹³²

3.3 Economic Development and Environment

Natural resources were not factored in the development of modern economic theories. The development of these theories took place in the 1950s and 1960s.

At the time capital and labour were considered the main factors that could contribute to economic growth in the sense of output flow as well as growth. The models of economics will further interrogate capital, which they said was as a result of all the domestic savings, and the foreign direct investments.¹³³ These models especially the growth theory would argue that growth was not obvious and infinite, rather there were limits to it. This was demonstrated by the fact that if the capital for each person was to increase, the rate at which

¹³¹ Yifan Ding, 'Impacts of Affluence and Overexploitation of Natural Resources', Institute of World Development, Development Research Centre of State Council, People's Republic of China, (2009)

¹³² Yifan Ding, 'Impacts of Affluence and Overexploitation of Natural Resources', *Institute of World Development, Development Research Centre of State Council, People's Republic of China*, (2009)

¹³³ John Pezzey, 'Economic Analysis of Sustainable Growth and Sustainable Development', *Washington D.C.: World Bank, Environment Department Working Paper No. 15*, (1989), Published as 'Sustainable Development Concepts: An Economic Analysis', *World Bank Environment Paper No. 2*, (1992)

the output growth per person would decrease until a status quo was achieved. Even with realizing this, the role of natural resources in economic growth was not acknowledged. Technology on the other hand was included as one of the important inputs in economic growth. Technological advancement was assumed to be outsourced from external sources and was not acquired from certain skills or equipment, though new discoveries made in the growth model have revealed that this is an untrue assumption. It was assumed that technological advancement could increase output growth.¹³⁴ But still, the environment as whole and natural resources specifically were not considered as inputs of value in economic growth, at that time. Also many didn't realize that the destruction and depletion of these variables would decrease the output per capita achieved.¹³⁵

Appreciation and acknowledgement of natural resources and the environment generally as a factor in economic growth began in the late 1960s. Natural resources and environmental economists drew attention to the links between economic growth and natural resources as they were exploring the subject of limits to economic growth. More studies were carried out by development economists, mostly in the 1970s on the issue, and it was evident that the traditional growth model had to be revised if it were to be effective in analyzing events, issues and processes in economic growth. These scientists realized that for there to be conclusive macroeconomic policies it would be necessary to include environmental policies in the input as well.¹³⁶

¹³⁴ Ibid

¹³⁵ John Pezzey, 'Economic Analysis of Sustainable Growth and Sustainable Development', *Washington D.C.: World Bank, Environment Department Working Paper No. 15*, (1989), Published as 'Sustainable Development Concepts: An Economic Analysis', *World Bank Environment Paper No. 2*, (1992)

¹³⁶ Ibid

The question of sustainable development was included in the analysis of economic growth in the 1980s as well as environmental protection debate received more attention more so at the international scene. The state of the environment as well as the quality and the effective management of both the renewable and the non-renewable natural resources determines the sustainability of the economic growth process. This is according to the new growth model. The level of pollution, or its assimilation- what is known as environment service also determines the state of the environment on the other hand.¹³⁷ This resulted in a mathematical analysis that explained the relationship between economic activities and natural resources and the environment, and the state of destruction and depletion of the latter two.¹³⁸

3.4 The Predicament of Developing Countries

Despite where you stand on the North-South Debate on economic development and environmental degradation, it is undisputed that current exploitation of natural resources in most developing countries is unsustainable. For instance, forests are quickly disappearing because of the high rates of logging for economic gain, as well as clearing for agricultural activity and occupancy due to population increase pressure. Other than that, desertification is occurring at a faster rate in developing countries due to single cash crop farming and the high yields resulting from the same, similar to the events that occurred in the US in the 1930s.¹³⁹ Some citizens of these states have also been exposed to undrinkable water because of contamination of the water from industrial waste as well as municipal waste that is untreated. This has also affected aquatic life, as contamination of their habitat makes it

¹³⁷ Ibid

¹³⁸ Ibid

¹³⁹ Armin Rosencranz, Paul Kibel, and Kathleen D. Yurchak, 'The Principles, Structure, and Implementation of International Environmental Law',

unlivable. Critics argue that the seriousness of the problem in developing countries is not only obvious from a political standpoint but also from an economic perspective.

Linkages between environmental degradation and poverty have never been clear, an alarming fact in all trueness.¹⁴⁰ Overexploitation of natural resources in a short period becomes a solution for many developing nations who are in foreign debt, as they more often than not lack the ability to manufacture the resources extracted. Another worrying trend is that of lowered health and environmental standards in the hopes of attracting foreign direct investments. Most developing nations do this in the hopes that this will ultimately lower the cost of production for these resources meant for exports. This in turn means that Multi-National Companies will set up shop in these countries. Other than that, in most of these nation states, the government is the only decision making organ, and public opinion in policy making is non- existing due to legal structure or lack thereof such as democracy or the political stability of the state.¹⁴¹ This state of affairs motivates developed countries and their Multi- National Companies to put up their industries in these countries, and due to the lowered health and environmental standards, the incentives for pollution and hazardous waste dumping are rife. Unfortunately the outcome of this process and trade is that the developing nation engaged will not gain any benefits economically and are saddled with the unfortunate environmental degradation and health concerns impacts. There are numerous examples too this unfortunate state of affairs including the unsafe chemical industries found in India as

¹⁴⁰ Ibid

¹⁴¹ Ibid

well as the exploitation of oil in the nation of Ecuador and the large scale deforestation of the Southeast Asia's native forests.¹⁴²

A new frontier in this debate has also emerged, that if plant genetic species, and their exploitation. Recognizing that; developing nations more often than not have abundance in biodiversity resources whose utility is essential especially in the pharmaceutical centre and seed manufacturing, contrary to developed nations who are technologically advanced, there exists a problem of overexploitation of these resources by the industrialized states.¹⁴³

The varied interests between the global Northern and Southern countries and their outlook on economic development and environmental protection, provide a unique situation on the cooperation among these states.¹⁴⁴ The developing countries argue that the newfound enthusiasm for environmental issues from the start of the 1970s is an attempt to frustrate their economic development and a chance of equitable international trade. The 1987 Brundtland Commission addressed the issue and concluded that significant environmental degradation was as a result of human activities aimed at dealing with poverty through economic development.¹⁴⁵

The South's main argument is that it is now their time to reap the benefits of their natural resources, an argument that makes it even hard for them and their northern counterparts to be amenable for mutual cooperation. The sovereignty of states means that any intervention by

¹⁴² Ibid

¹⁴³ Ibid

¹⁴⁴ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations', *The Turkish Yearbook*, Vol. XXIV, (1994)

¹⁴⁵ World Commission on Environment and Development, 'Our Common Future', *Oxford University Press*, (1987)

developed countries in developing countries to conserve the environment or to imply the same for selfish interest or lack thereof is interpreted rightfully or otherwise as eco-imperialism.¹⁴⁶

Actions such as debt for nature conservation swaps; where developing countries receive payments for the conservation of their environment in exchange of their debt, are seen as interference by the developing nations. Another crucial issue is that of population policy. Any attempts by the global North to try and dictate this policy is met with a lot of resistance from the South as, population policy is a touchy and egoistic other than a cultural issue, and primarily one of sovereignty. The south is very dismissive of the North's arguments in regard to environmental protection. In essence they argue that the North should criticize themselves first when it comes to environmental degradation before they do the same for the South and try to govern environmental issues.¹⁴⁷ They argue that, not only is the North the main cause of the state of the environment, by contributing immensely in the destruction of the environment and pollution, but also the fact that there also the cause of problems being witnessed in the South. This is mainly during the colonial and post-colonial periods, as the North still controls the economic and the social structures of the developing countries.

The South condemns the North, for criticizing the activities from which they are the biggest beneficiaries economically. The south is also enthusiastic about the term used by the North, that of 'donor' when involved with the south over environmental issues.¹⁴⁸ According to the

¹⁴⁶ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations',

¹⁴⁷ Marc J. Dourejeanni, 'View from the North: in Global Change and Our Common Future', *Committee on Global Change, NRC, Wahington, National Academy Press*, (1989)

¹⁴⁸ Ibid

South, environmental conservation is a global common and not a thing of individual gain but a mutual one, neither is something to be granted or handed down in a dictatorial manner. Terms such as donating, encouraging, or guiding, found in most Northern environmentalist literature, fall short of what the relationship should be, one of cooperation. The differences between the developing and developed countries to increase, as the gap between the two widens. Issues such as natural resources conservation, population policy, the environmental policies concerned with international trade are differing interests between the two that are in conflict.¹⁴⁹ There isn't any anticipated change in the relationship between the North and South on the impacts of exploitation of natural resources on the environment, despite the current and potential threats to the global environment. Nor are there any conclusive agreements or treaties on issues such as hazardous waste management or, climate change or loss of biodiversity expected to be created, signed, ratified and enforced.¹⁵⁰

3.6 Unplanned Exploitations of Environmental Resources, Nigeria's Experience.

Nigeria is an example of a developing country caught in the dilemma of exploiting its natural resources and implementing international and national environmental policies. Nigeria has many resources including water and vegetation resources, indicating a clear abundance of resources. Vegetation resources are categorized in three ways; grassland or savannah, forests and montane. Water Resources on the other hand are also part of Nigeria's numerous resources. And with certainty Nigeria like all other countries has atmospheric resources.¹⁵¹

¹⁴⁹ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations'

¹⁵⁰ Ibid

¹⁵¹ Ibid

The abundance of these resources draws attention as to how they are exploited and how activities from their exploitation affect the natural environment. Some critics argue that Nigeria's contribution to environmental destruction through overexploitation of natural resources, is disheartening, despite it being among the vocal countries in the 1972 Stockholm conference.¹⁵² **Figure 3.1** shows different resources that are vulnerable to overexploitation in Nigeria and if not addressed could lead to further destruction of the environment.

Figure 3.1 Environmental resources in risk of overexploitation in Nigeria

1. Atmosphere Resources: the importance of air is as obvious as life itself. And still its importance is often unappreciated. Air pollution is by far a serious issue in Nigeria. There have been reports of hardship and to some extent ailments caused due to air pollution. Another serious issue is that of scraps. In Nigeria, those who deal with scrap are known as scavengers. And at times they sell the refuse waste to unsuspecting buyers who end up becoming sick from the waste. The place where these scraps are kept also lead to soil erosion. This has an effect in rainfall making. This might not be proven scientifically.

2. Vegetation Resources: The slash and burn policy in Nigeria has taken a great toll on Nigeria's natural environment. This practice aimed at clearing forests for the purpose of creating room for agriculture. This practice has reduced the number of forests in the country as well as exposed animals living in this forests to death as well as poaching. The number of animals such as lions and elephants has reduced significantly. The clearing of forests have also contributed to the loss of plant species especially exotic and rare ones. Soil fertility has also been affected by the burning as well as from the exposure from the

¹⁵² B. O. Hyginus, 'The Niger Delta Environment, its Local Geography', *Prelyn Publishers*,(2003)

sun. Desertification as well as soil degradation has been caused by over grazing. The impact of these factors is frequent draughts that lead to deaths, malnutrition and rural to urban migration, where conflict arises over the sharing of the scarce resources found in urban areas.

3. Water Resources: Nigeria has various water sources which not only provide water services but are also stocked with fish and aquatic life that provide a livelihood to part of their population. Contamination of these water sources has raised alarm. The disposal of waste products in water sources has had health implications on the human population as well as other forms of life including aquatic life. Pollution of water resources has led to the death of fish, which has affected the livelihoods of fishermen.

4. Mineral Resources: Oil and gas specifically have caused a lot of damage to the environment. Gas flaring particularly is a problem caused by unplanned activities of oil exploration. Gas flaring produces environmental heat that is harmful in nature. The exploration and mining of other minerals as well have caused negative impacts such as health issues on humans for example ailments such as cancer, or respiratory problems.

Acid rain is also another consequence which has negative impact not only on the human populace but forests, animals, aquatic life and water sources.

Source: Alexander Chinago Budnuka, (2015)

3.7 Conclusion

North south debate on environmental issues demonstrates clearly the direction most developing nations undertake when exploitation of natural resources are concerned. With economic development being a superior interest to environmental protection, it is critical for an approach that allows for exploitation of resources in a manner that has minimal impact on the environment.

Subsequently, many developing nations have crafted national environmental policies, with some adopting international environmental policies. For states like Nigeria, who have been involved in the extractive industries for a while now, challenges have been witnessed in implementing the environmental policies in place.

Kenya has just discovered oil in some parts of the country and exploration is still going on, in many of these areas. Kenya has environmental policies established in different rules and regulations and with more being crafted as the petroleum energy sector is new in the country. Already, conflict has risen over exploitation of oil and other natural resources and environmental policies both local and international.

The next chapter looks at national environmental policies and specifically the case of Kenya's Arabuko Sokoke Forest in Kilifi, where concerns of environmental degradation have been raised after oil was discovered.

CHAPTER FOUR

EXPLOITATION OF NATURAL RESOURCES AND IMPLEMENTING INTERNATIONAL ENVIRONMENTAL POLICIES: THE CASE OF ARABUKO SOKOKE FOREST, KILIFI KENYA

4.1 Introduction

According to Bodansky, environmental laws created by any nation has international implications.¹⁵³ They manage natural resources and environmental quality. International laws however are the agreements among nations or corporations and citizens of different nations to protect the environment. International institutions do not directly implement these laws but do mostly monitoring and informational. As shown by Bodansky et al these laws could be treaties, conventions or customary international law.¹⁵⁴

According to UNEP Forum (1997) some of the important international environmental conventions include; the Basel convention, UN law of the sea, MARPOL, Montreal Protocol of the Vienna Convention, Biodiversity Convention among others.¹⁵⁵ On the other hand, environmental principles and general guidelines include; Chemical usage (API), Oil spills (UNEP), Seismic operations (IAGC), Drilling muds (UNEP), Tropical rainforests (IUCN) and cleaner production (UNEP).

In Nigeria for example, there has been massive land degradation on the mangrove forest due to the exploration of oil. Oil spillage can cause the death of aquatic animals. Common

¹⁵³ D. Bodansky, 'The art and craft of international environmental law', *Cambridge, Mass: Harvard University Press*, (2010)

¹⁵⁴ D. Bodansky, J. Brunnée, & E. Hey, 'The Oxford handbook of international environmental law', *Oxford: Oxford University Press*, (2007)

¹⁵⁵ See UNEP (1997)

legislations relevant to the oil industry include but not limited to; Environmental impact assessment, marine pollution, protection of indigenous and cultural heritage, petroleum laws, national park and protected area laws.

According to the UNEP (2009), to date there has been not less than seventeen violent conflicts triggered by the exploration of natural resources.¹⁵⁶ These have occurred in regions such as Angola, DRC, Darfur in the Sudan and Middle East. Other examples include the conflicts in Nigeria coupled with insurgency.¹⁵⁷

Other conflicts other than environmental degradation can be violent. Categorized as internal or external and confined to a specific territory. These conflicts have led to the formation of OPEC which tries to ensure solidarity in both the quantity and cost of crude oil. This has helped to contain interstate conflicts especially when the conflicts are on the shared border. According to Yav, there has been a lot of conflict at the shared border of Uganda and the Democratic Republic of Congo, since the discovery of oil was made in that area.¹⁵⁸

According to Patey, MNCs have also contributed to the escalation of war between such countries. They practice the divide and rule approach hence causing some of the most daring civil wars in developing countries such as Colombia, Sierra Leon, Angola and DRC.¹⁵⁹

¹⁵⁶ See UNEP Report (2009)

¹⁵⁷ Jos Boonstra, Edward Burke, and Richard Young, 'The Politics of Energy: Comparing Azerbaijan, Nigeria and Saudi Arabia', *FRIDE 68 working paper 2(3)* (2008), pp. 34-78

¹⁵⁸ Joseph Yav, 'The Curse of Oil in the Great Lakes of Africa', (2007) Retrieved on 6th October 2016 from <http://www.globalpolicy.org/security/natres/oil/2007/1003greatlakes.htm> Accessed on 17th April, 2009

¹⁵⁹ A. Patey, 'State Rules: Oil Companies and Armed Conflicts in Sudan', *Third World Quarterly. Exploitation of natural resources* **18(2)** (2007), pp. 1-19

The UNEP's stand is that any production of a natural resource must adopt a 'clean production'. Minimizing risks to the human population and the environment. In the same way the American petroleum Institute say that pollution prevention is an integrated concept that reduces or eliminates pollutants discharged into the air, water, land and includes more environmental friendly products and practices.

The energy charter, stipulates that the protection of the environment by a coordinated effort of implementation of energy policies as well as together with other national and international environmental policies.¹⁶⁰

According to Atchia, environmental policy has dealt with three main issues:¹⁶¹

- (i) The threats in regard to the health of the public especially the diseases that are communicable through the air or and water. This threats are posed because of pollution of the air or contamination of water sources that cause outbreaks of these diseases. Appropriate measures put in place to ensure minimal or no pollution to the air or contamination of the water, further reduces risks of hazardous diseases affecting not only the human population but other animals and plants as well.¹⁶²
- (ii) There also issues of biodiversity,¹⁶³
- (iii) The overexploitation of natural resources, such as fish stocks and tropical rain forests¹⁶⁴

¹⁶⁰ EIA, 'Annual energy outlook with projections 2015', Place of publication not identified: *Energy Dept* (2015)

¹⁶¹ M. Atchia, 'Environmental management: Issues and solutions', *Chichester* (1995)

¹⁶² M. Atchia, 'Environmental management: Issues and solutions'

¹⁶³ M. Atchia, 'Environmental management: Issues and solutions'

¹⁶⁴ M. Atchia, 'Environmental management: Issues and solutions'

4.2 Exploitation of Natural Resources and Implementing International Environmental Policies: The Case of Nigeria

Nigeria has environmental laws and policies put in place as a way of ensuring that exploitation of its abundant resources does not harm the environment. Nigeria has various types of resources, these include mineral Resources. Nigeria has created agencies, laws and regulations to manage environmental problems in the country, which are all managed by the Ministry of the Environment of Nigeria and the Federal Environmental Protection Agency (FEPA).¹⁶⁵ The environmental issues, and the environmental policies found in Nigeria can and are categorized as conceptual issues defined by legal, political ecology frameworks in manner that suggests attempts sustainable development. A common mistake is the fact that the activities that are economic or social and political have nothing to do with the environment, a notion that is wrong as they all part of the environment and the ecosystem at large.¹⁶⁶ Nigeria's 1999 constitution section 20 not only contains the policies and framework of environmental protection but also spells out the role of the state to protect and safeguard the environment of Nigeria. This law has been amended after the initial policy of 1999 was enforced.

The existence of laws and policies set to engage discourse and more importantly regulated practices that pose danger to the natural environment are not as in the case of Nigeria an assurance that the environment will not be destroyed. It takes more than the presence of

¹⁶⁵ Alexander Chinago Budnuka, Aloni Clinton, and Chukwunma Agi-Otto, 'The Effect of Unplanned Exploitation of Environmental Resources: The Nigeria's Experience', *Journal of Environment Pollution and Human Health*, Vol. (3)2 (2015)

¹⁶⁶ Ibid

policies whether international or national to protect the environment, as it also depends on the political will of the government and its agencies, as well as that of the public.¹⁶⁷

4.3 Exploitation of Natural Resources and Implementing International Environmental Policies: The Case of Arabuko Sokoke Forest Kilifi Kenya

This is East Africa's largest coastal forest. 20% of Kenya's bird species are found in this forest as well as, 30% of the butterfly species. There are also twenty four rare butterfly mammal and bird species.¹⁶⁸

According to Kenya Forest Service (KFS), the forest has 40 known mammal species including the Caracal, African Buffalo, Lesser Galago, Sykes Monkeys, African Civet, African Elephant and Yellow Baboons.¹⁶⁹

The forest is also home to birds, over 270 species to be exact. More notably is the Clarke's Weaver, whose only home is the forest and an area which is only 30km north of the forest.¹⁷⁰

Some of the other birds facing extinction and are found in the forest include: the Sokoke Pipit, Sokoke Scops Owl, and the Amani Sunbird. Other than the birds the forest is also home to over 25 amphibian species as well as 49 reptile species.¹⁷¹

¹⁶⁷ Alexander Chinago Budnuka, Aloni Clinton, and Chukwunma Agi-Otto, 'The Effect of Unplanned Exploitation of Environmental Resources: The Nigeria's Experience'

¹⁶⁸ KFS. 'Arabuko- Sokoke Forest, Kenya', (2016) Retrieved on 7th October, 2016 from <http://www.kenyaforestservice.org/index.php?option=com_content&view=article&id=76&Itemid=522>/

¹⁶⁹ Ibid

¹⁷⁰ Ibid

¹⁷¹ Ibid

Gas and oil in the forest

Natural Bitumen and Extra-Heavy Oil was discovered in the Arabuko Sokoke Forest. CAMAC Energy which has since changed its name to Erin Energy and its sub-contractor publicized that they were planning two transect across the forest to conduct seismic surveys for oil and gas.

According to Vermeer, et al (2012) in his book 3D seismic survey design these surveys involve setting off explosions in holes or seismic waves from a machine vibrator which could be harmful to the environment.¹⁷² The seismic waves travel deep into the earth and are reflected by sub-surface formations, giving a clue as to whether water, oil or gas may be trapped underground. Transect lines or roads 4 to 5 meters wide are cut to transport the heavy vibration and recording equipment.

Erin Energy had been allocated an Oil Block L16, which included much of Kilifi Country, including Arabuko-Sokoke Forest, Gede Ruins National Monument, and Malindi and Watamu Marine National Parks. These protected areas, however, are only a small section of Oil Block L16.

4.3.1 Environmental protection concerns.

According to Kumar, on environmental protection, it is an international best practice to exclude protected and high-biodiversity areas from oil and gas exploration.¹⁷³

Key environmental stakeholders such as the Arabuko-Sokoke Forest Adjacent Dwellers Association (ASFADA) and other community groups near the forest; Nature Kenya (NK), A

¹⁷² Gijis J. O. Vermeer, '3-D Seismic Survey Design', *GeoScienceWorld*, (2012)

¹⁷³ S. Kumar, 'Environmental protection', *New Delhi: Northern Book Centre*, (2009)

Rocha Kenya, the KFWG, Birdlife International and several of its Partners rallied to the cause.¹⁷⁴ Letters of protest were written to the relevant ministries and government agencies both local and international such as Erin Energy in Nairobi and its headquarters in the United States. An online petition was started. All these were in an attempt to save the natural environment.¹⁷⁵

These groups argued that the EIA done for the Energy Company was unprofessional. It was having many errors and inconsistencies and perhaps outright misinformation.

There had not been proper consultation either during the EIA or after it was submitted to NEMA. This violates the EMCA, which states that in such activities there must be room for a participatory approach in an EIA.

The local communities complained that they had not been consulted, and though Erin Energy claimed to have done an EIA, none of the stakeholders had been involved and not seen it too. This was done by Earth view Consultants that referred to two endangered species i.e. Grévy's zebra and African wild dogs that do not live in the survey area, known as L16. Finally the Forest was set free with its oil resources beneath.¹⁷⁶

¹⁷⁴ Outcry as Oil Explorers Now Enter Coasts Biggest forest, *The Star*, (Nairobi), November, 7, 2014

¹⁷⁵S. Kumar, 'Environmental protection',

¹⁷⁶ Doreen Katwai, Interview with Augustine Nkuba, Managing Director, Erin Energy (K) Ltd. Nairobi, October 2016

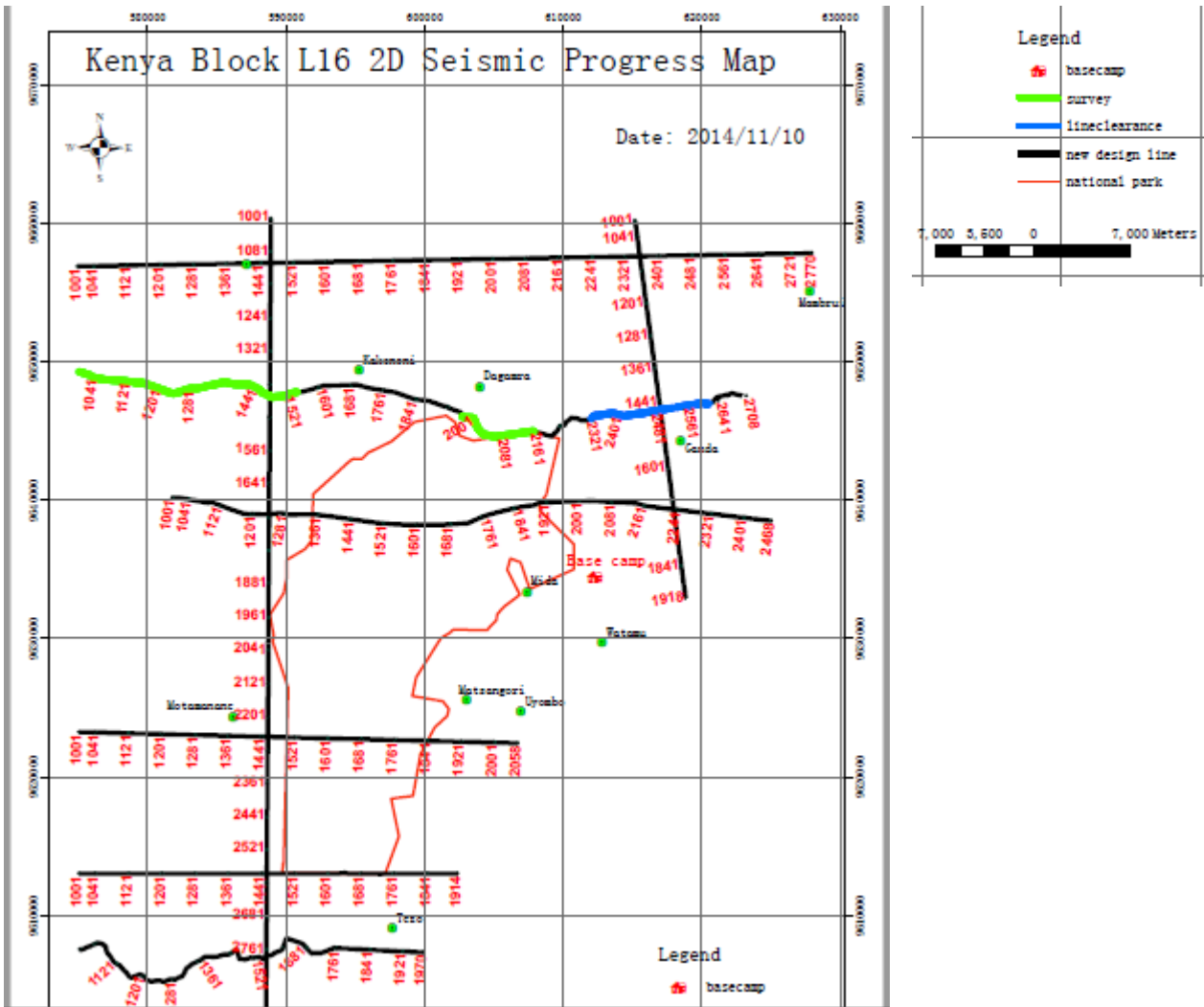
The company resorted to leaving out the forest in their seismic survey. According to the company resistance they faced from local environmentalists, left them with no other choice, and the government was not keen on coming out strongly on the issue.¹⁷⁷ According to Augustine Nkuba, the managing director of Erin Energy, the national government shied away from dealing with the matter, not wanting to fight environmentalists both local and international.

Initially the company had set out to explore the whole of block L16. Block L16 is located in the Lamu offshore basin in Kilifi County which covers Kilifi north, Malindi, Ganze and Magarini sub-counties. The block covers an area of approximately 3,494.49 Km² and is bound by coordinates 30 05'S and 390 40'E on the north-western side and 30 37'S and 400 20'E to the south-eastern extent. Block L16 covers both onshore and offshore areas.¹⁷⁸

¹⁷⁷ Ibid

¹⁷⁸ Erin Energy, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy', (2014)

Figure 4.1 Map of Proposed Seismic Study



Source: Erin Energy, ‘Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy’, (2014)

The map shows Block L16 and where Erin Energy had proposed to do the seismic study.

The company's main goal was to prospect for oil in the block. Exploration was to be conducted in two phases. The first was a 2D seismic survey then to be followed by a 3D seismic study.¹⁷⁹

The 2D seismic survey process in Block L16 involves a number of phases detailed below:

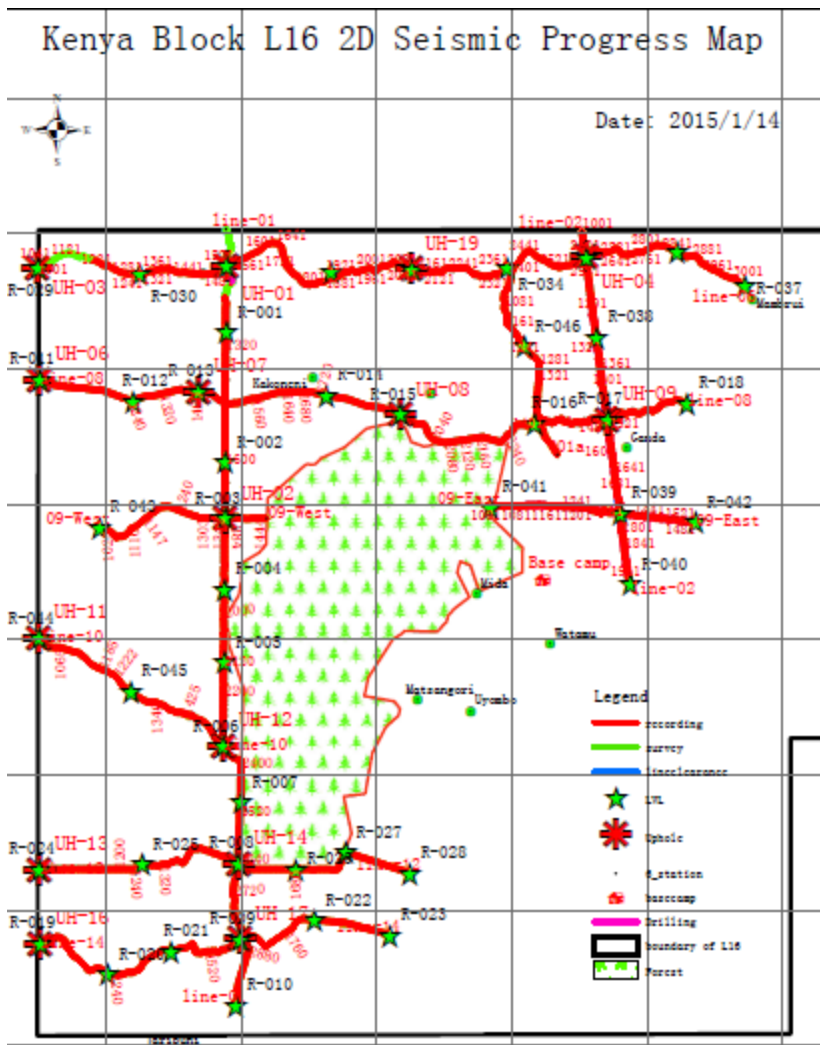
- Survey Design: This is the positioning of seismic lines to achieve subsurface imaging objectives.
- Permitting: This involves obtaining access permission from land owners, communities and local authorities.
- Line survey: This is the positioning and marking of seismic lines.
- Line Clearance: This involves creation of physical access for personnel and equipment on seismic lines. The width of line clearance differs with the energy source used and is approximately 4.0 to 5.0m for Vibroseis vehicles and/or 3.5 to 4.0m for dynamite shot hole drilling.
- 2D seismic acquisition: This involves using of Vibroseis trucks or drilling of shot holes if required for loading of dynamite.
- Recording: This phase involves layout of ground equipment for recording of seismic data. Geophones are laid approximately 25m apart.
- Restoration: Restoration of seismic lines after completion.¹⁸⁰

¹⁷⁹ Doreen Katwai, Interview with Augustine Nkuba, Managing Director, Erin Energy (K) Ltd. Nairobi, October 2016

¹⁸⁰ Erin Energy, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy, (2014)

The objective of the seismic survey is to identify and delineate potential prospects, if any, in sufficient detail and to be able to, at a later and different stage, carry out exploratory drilling. However due to pressure from local and international environment activities, Erin Energy did the seismic study on Block L16, excluding the area in the forest. **Figure 4.2** is map of the area where the actual seismic survey was conducted.

Figure 4.2: Map of the actual seismic survey



Source Erin Energy

Erin Energy says that they have explained to the national government and several environmental activists on how they conduct their surveys and mining, when and if oil is discovered.¹⁸¹ The process is as follows:

1. Onshore Seismic Survey

In a 2D onshore seismic survey, a receiver cable of between 6 to 12 kilometres in length is laid out at a time on the ground and a geophone placed to connect the receiver cable to the ground.¹⁸² Geophones are sound wave and vibration sensitive devices used to record reflected sound waves from the earth's sub-surface. A truck-mounted recording system is then connected at one end of the receiver cable to record the sound waves picked up by the geophones. The recordings are then analysed and interpreted by geoscientists to create a map of the structures beneath the earth's surface. The phases involved when undertaking an onshore seismic survey include:¹⁸³

- **Survey Design:** This involves the positioning of seismic lines to achieve subsurface imaging objectives. Seismic survey design is driven by exploration objectives to image the subsurface. The survey design requires the placement of a pattern of seismic lines on the surface and set of acquisition parameters that define seismic source and configuration e.g. the number of seismic source and receiver points to be surveyed and placed on the ground.
- **Permitting:** This phase involves following the required processes and procedures in order to obtain access permission from landowners communities and local authorities.

¹⁸¹ Doreen Katwai, Interview with Augustine Nkuba, Managing Director, Erin Energy (K) Ltd. Nairobi, October 2016

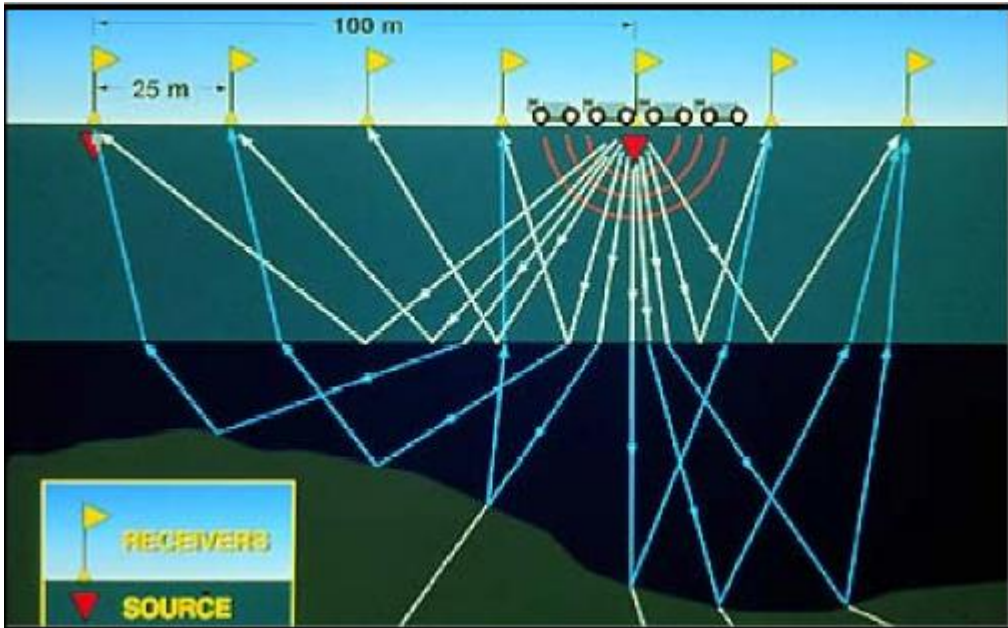
¹⁸² Ibid

¹⁸³ Ibid

- **Line survey:** This step involves positioning and marking of seismic lines. Line preparation is started by laying out the seismic lines according to the pre-planned seismic lines by survey teams. Where possible, seismic lines are routed around significant biophysical features such as trees, surface water features, cultural property such as known archaeological areas, places of worship, sacred locations, graves e.t.c.
- **Line Clearance:** This step involves the creation of physical access for personnel and equipment on seismic lines. The width of line clearance differs with the energy source used and is approximately 4.0 to 5.0M for Vibroseis vehicles and 3.5 to 4.0M for dynamite shot hole drilling. Lines are cleared of natural vegetation (where present) to ground level using a combination of bulldozers as rollers to flatten low level vegetation followed by mulchers; vegetation roots are not removed from the soil to facilitate regeneration. On rocky terrain, a bulldozer is used to clear the line. Upon completion of the seismic acquisition and recording process, the stones are reinstated back to the seismic line.
- **Drilling:** This step involves drilling of shot holes if required for loading of dynamite as an energy source.
- **Recording:** This involves layout of ground equipment for recording of seismic data. Two popular industry methods.¹⁸⁴

¹⁸⁴Erin Energy, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy', (2014)

Figure 4.3 Overview of Seismic reflection method



Source: Erin Energy

- Restoration: This stage involves restoration of seismic lines.

The choice of energy source for a particular project or project area is subject to topography, ground conditions and the quality of seismic data that can be returned by these sources subject to the known, sub-surface geology.¹⁸⁵

¹⁸⁵ Ibid

4.3.2 The Mandate of NEMA

The Environmental Management and Coordination Act (EMCA) of 1999 establishes and tasks the National Environment Management Authority (NEMA) with the management and protection of the environment.¹⁸⁶ NEMA is the Kenyan government agency responsible of coordinating all efforts of preventing and remedying damages made to the environment. Its main mandate in relation to the extraction processes include:

- The coordination of activities aimed at managing environmental processes. They are also tasked with ensuring that environmental policies are integrated in the various government ministries and agencies, and are put into consideration in the development of other laws, statutes, policies agreements and international treaties as well. This is to ensure that the government practices sustainable development in the exploitation of natural resources as well as private entities such as companies and individual citizens.
- NEMA also carries out studies to inform environmental policies for environmental protection as well as its management processes.
- The agency at times might be involved in other institutions research, public or private alike, and be in cooperated in their research, either through investigations or coordinating programmes or publishing and dissemination of reports.
- The agency is also mandate in monitoring and evaluating programmes and projects undertaken by the government and private entities so as to ensure that they are compliant to the Act.;
- They also act as an early warning mechanism if the environment is threatened by degradation or destruction as they carry out monitoring and evaluation of projects.

¹⁸⁶ See Environmental Management and Coordination Act (EMCA) of 1999

- NEMA is the leading institution in raising public awareness about environmental management as well as to illicit support in the processes undertaken to that effect. The agency can and does collaborate with other institutions governmental and non-governmental to achieve this goal.
- The agency also provides publications of various kinds to government institutions and agencies as well as private entities including learning institutions as a way of achieving support and awareness from the public.
- The agency also provides technical advice to stakeholders engaged in exploitation of natural resources, environmental advocates, researchers as well as law makers on topical issues.¹⁸⁷

4.3.3 The ESIA Process

A detailed field-based environmental and social impact assessment preceded by extensive desk study was undertaken from 1st December 2013 to 19th January 2014. The ESIA process was used to assess the potential environmental and social impacts (both positive and negative) of the 2D seismic survey; facilitate management and control of the potential environmental and social impacts associated with the seismic survey process; assess compliance with relevant statutory and regulatory requirements and raise awareness of and commitment to environmental and social policies by the proponent, the community and other concerned parties through public meetings. The environmental parameters assessed during the ESIA included¹⁸⁸:

- physiography,

¹⁸⁷ Ibid

¹⁸⁸ Erin Energy, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy', (2014)

- geology and geological setting
- soils and soil characteristics
- climatology and air quality
- surface and ground water potential and quality
- flora and fauna
- land resources
- visual aesthetics
- noise and vibrations
- solid wastes and effluents
- socio-economic and health and safety issues.

Earthview conducted public awareness through administrative leaders of the project area as well as invitation through letters, emails and phone calls inviting all interested parties to air their views and concerns. The public consultation meetings were extensive, and included formal and informal interviews with the community and the stakeholders, through intensive public barazas (meetings) as well as completion of questionnaires.¹⁸⁹ The information gathered provided details of the current environmental and socio-economic baseline situation and was critical for development of the Environmental and Social Management Plan (ESMP). Regulations, guidelines and standards. The policy and legislative framework upon which this ESIA survey for the proposed project was based on includes Kenyan and International legislation but was not limited to the National Energy Policy (2012); Environment and Development Policy; Land Policy; Kenya Health Policy; Environmental

¹⁸⁹ Ibid

Management Coordination Act (EMCA) 1999; Devolved Government Legislation, International Standards and procedures including: International Association of Oil and Gas Producers (OGP) Guidelines; World Bank Group Environmental, Health and Safety (EHS) Guidelines (2007) and International Finance Corporation (IFC) Sustainability Performance Standards (2012) and Guidelines (2007).

Baseline Overview

The proposed project area is located within Kilifi County whose administrative headquarters is located at Kilifi Town. Kilifi is a coastal county that neighbours Mombasa to the south, Tana River to the north, Indian Ocean to the east and Kwale to the west. The County covers an area of 12,245 square kilometres and the proposed project area covers an area of 1,758 square kilometres. The County's economy largely relies on fishing and tourism. The County has seven Sub-Counties (which are also the political constituencies) – namely Kilifi North, Magarini, Malindi, Kilifi South, Rabai, Ganze and Kaloleni. The proposed project area has two seasons of moderate rainfall averaging 900mm in a year. Long rains occur in the months of March and July with a peak in April while the short rains occur in October and December with a decrease in December leading to a minimum in January. Rainfall is controlled by the Monsoon winds and topography. The annual temperature range averages 29.5°C (maximum) and 22°C (minimum). Average relative humidity is 65% but decreases to the hinterland. ¹⁹⁰

Block L16 has heterogeneous landscape types that range from urban (Kilifi and Malindi), peri-urban (Lango baya, Timboni, Ganze, Jilore, Kakoneni, Garashi, Mtondia, Matano Mane,

¹⁹⁰ Ibid

Ganda, Gede Vitengeni, Sokoke, Dida, Tezo, Kakuyuni and Kazandani centres/towns), farmlands (spread all over the onshore areas of block L16) project area.

Block L16 supports a mosaic of different vegetation types ranging from shrub land/thicket habitats and coastal variants of savannah woodland habitats. The block also hosts various habitats which include the Arabuko Sokoke Forest and Gede Ruins Coastal Lowland Forest and shrub land (around Madzayani, Mpirani, and Gandini. Lango baya, Timboni, Ganze, Jilore, Kakoneni, Garashi, Mugutuni, Kakoneni, Mwangea, Kibaoni, Kafuoni, Mtondia, Sokoke, and Kazadhani areas. The most dominant species include *Diospyros cornii*, *Manikara mochisia*, *Grandidiera boivinii* and *Suregada zanzibarensis*.

Livelihood zones in the project area include cash cropping/dairy, fishing and mangrove harvesting, food cropping, formal employment/casual waged labour/business, marginal mixed farming and ranching. Main economic activities in the project area include agriculture, tourism, livestock keeping, manufacturing and fishing. Mangrove harvesting is also practiced.¹⁹¹

The transport network in the proposed project area is fair and reliable to a large extent. The area can be accessed via road, sea and air. The road network is relatively good with the Malindi – Mombasa road, done to bitumen standard being the main trunk road. Access roads off the trunk road to other trading centres like Ganze, Vitengeni, Ganda, Baricho and Garashi are graded all-weather murrum roads. Most areas within the block are thus easily accessible. The project area has reliable public service vehicles to various trading centres operated by

¹⁹¹ Ibid

individual transporters. The Malindi Airport managed by the Kenya Airports Authority is located within the proposed project area. In addition maritime transport to various destinations as well as for tourists to various tourist attractions off the coast of Kilifi is also available in the area.

Stakeholder Consultation

During the ESIA, meetings, interviews and discussions were held with local communities, the leaders, government officials and the NGO officials in Kilifi North, Ganze, Malindi and Magarini Sub Counties. The following areas were covered; Kilifi Town, Ganze, Vitengeni, Mwachera, Langobaya, Tezo, Roka, Ganda, Kakoneni, Baricho and Garashi. All the consultations were held from 20th to 29th January 2014.¹⁹²

A summary of concerns raised are as follows:

- Job opportunities are given to the local people as a matter of priority while ensuring equity in employment opportunities;
- Create more awareness to the public about the project particularly in the grass roots;
- Consistency in communication so as to avoid misconceptions and misunderstandings;
- Equity in employment opportunities;
- Involve local leaders/ communities at every stage of the project; and
- Should the project cause any damage on soils/land the company should assist local in soil reclamation and revival.

¹⁹² Ibid

- All mitigation measures should be put in place to protect the environment
- The proponent should involve the local land survey office during compensation, if there is need;
- There should be Beach Management Units liaison officers to link the proponent with the fishing community; this will help to iron out potential conflicts.

Impacts Assessment

Aspects of the proposed and unplanned activities that are likely to affect baseline conditions in the project area include:

- the project footprint (access road and base camp construction);
- the area within which dust may settle;
- the area in which air quality may be degraded as a result of construction activities;
- the area within which noise may be audible;
- communities close to the base camp location;
- the areas into which grazing herds may be displaced as a result of the base camp or access roads;
- groundwater resources which may be degraded as a result of uncontained spillage;
- soils which may be degraded due to compaction and uncontained spillage; and
- the road network where construction traffic may result in a noticeable increase in traffic levels

Potential impacts that may be experienced as a result of the 2D seismic operations include:

- Soil erosion via wind and water through runoff due to exposed soils
- There may be scarring and displacement of sediments from quarries and borrow pits while extracting materials for civil work at camp.
- Noise and vibration Nuisance to humans, animals and livestock
- Contamination of water resources as a result of spillage and leakages
- Campsite not blending with the local environment
- Cutting of vegetation along cut lines
- Disturbance of wildlife by physical presence and noise especially the endangered species Gravy's zebra and African wild dogs
- Introduced weeds and pests
- Disturbance of aquatic flora and fauna
- Possible increase in number of students dropping out of school in search of jobs
- Friction among various clans in the project area and outsiders
- Improved short-term business opportunities for the locals
- Project operations might affect air quality on a micro-scale, and in a transient manner, through exhaust emissions from vehicles and machinery as well as fugitive emissions.
- There are several potential point and non-point sources of pollutants that can be generated during the life cycle of the project and that can lead to contamination of surface and ground water at site-specific and local scales. During construction of the access road(s), campsite, fluid leakages (e.g. accidental spillage of fuel, and

lubricants from vehicles and other machinery being used in the construction process) may occur, and could eventually contaminate surface and groundwater.

- The 2D seismic survey project shall involve mobilisation and transportation of equipment and machineries to the project site, an activity that will generate noise. Construction activities shall also generate noise.¹⁹³

Mitigation Measures

- Minimize vegetation clearance as much as possible when clearing the area for campsite construction; Use of mulchers should be encouraged in order to facilitate faster regeneration of vegetation along the cutlines post seismic survey operation.
- If archaeological materials are found during the operations, they should be left undisturbed, and the National Museums of Kenya (NMK) and the respective County government personnel should be contacted to advise further on how to proceed.
- The discretion of local community leaders should be used when offering employment.
- The proponent should sensitise its staff on the culture of the local community and promote good values.
- The proponent should consult with chiefs and elders in communities to ensure equity in employment and awarding tenders.¹⁹⁴

¹⁹³ Ibid

¹⁹⁴ Ibid

4.3.4 The Environmental and Social Management Plan (ESMP)

Before construction starts, the proponent must ensure that all the necessary permits have been obtained and that engagement with key stakeholders has been initiated. Local communities should be informed in advance when a seismic survey operation is to be executed along a given seismic transect/location. The proponent will carry out pre-construction surveys of the access road routes and the base camp location. The proponent will ensure that a Waste Management Plan (WMP), an Oil Spill Contingency Plan (OSCP) and an Emergency Response Plan (ERP) are provided before work begins to all subcontractors for implementation during the project. During construction operations the proponent and subcontractors' EHS personnel will carry out inspections to verify that the access road and campsite location are constructed with the minimum of disturbance to local communities.¹⁹⁵ They will also verify that construction reduces the cutting of dense shrubs and trees and avoids blocking natural drainage channels. In order to manage the project's impact on socioeconomic issues, several management plans concerning stakeholder engagement, gender, employment, resettlement, indigenous people, health and safety, road safety and grievance mechanism plan should be developed. The plans should aim to avoid or minimise any potentially negative impacts on the socio-economic welfare of local communities and maximise the potential benefits, in line with national legislation, CAMAC Energy policies and the IFC EHS Performance Standards.

4.3.5 The Draft National Energy Policy 2012

Energy is a vital component to the economic development of any nation. Kenya consumes and relies on electricity and petroleum in the production of goods and services with biomass

¹⁹⁵ Ibid

being consumed mostly in the rural areas. The sector currently relies solely on the import of all petroleum products. The discovery of oil in the northern parts of Kenya is bound to change this situation. Policy direction in the energy sector was previously governed by Sessional Paper No. 4 of 2004. The new draft policy has been prepared to bring on board emerging issues such as Vision 2030, and more importantly, the functions of county governments in the new Constitutional dispensation.¹⁹⁶

In view of the recent oil discovery in northern Kenya, the need to increase capacity for the exploitation of oil in terms of production infrastructure. This is hoped will meet the domestic market demands and those of the region. These developments will include modernizing the existing refinery and building a new one, thereby making products more competitive, creating wealth and ensuring security of supply and stabilizing prices. Increased use of LPG will be encouraged to reduce dependence on biomass and eliminate the use of kerosene in homes. Natural gas may be used for power generation, transport and domestic purposes.¹⁹⁷

4.4 Conclusion

The proposed Kenya Block L16 exploration and potential mining project will have both positive and negative impacts and thus the proponent should commit to implement mitigation measures that are effective in eradicating the possible negative impacts. The ESMP developed in the ESIA report should be strictly adhered to in order to ensure that the project remains environmentally, socially and technically friendly throughout its course.

¹⁹⁶ Ibid

¹⁹⁷ Ibid

It is also evident that most developing nations are caught up in a dilemma on how to proceed on exploitation of natural resources in a manner that does not harm the environment. A dilemma that hopefully will be resolved by research and modern technology.

The final chapter examines the way forward on the issues discussed in the preceding chapters.

CHAPTER FIVE

5.1 Introduction

5.1.1 Overexploitation and Bio Diversity

An examination of issues surrounding exploitation of natural resources and their effect on the natural environment, exposes how grave the situation can be. In the case of Arabuko Sokoke there runs the risk of loss of biodiversity.

a. The Utility Value of Biodiversity

The importance of biodiversity is not just for the human populace but also to the environment itself. However human beings have for a long time appreciated biodiversity for its aesthetic value.¹⁹⁸ At the same time, a various foods are also provided for biodiversity.¹⁹⁹ The usefulness of biodiversity is evident from the high range of services and goods received by human beings in regards to natural resources. In some instances the environment and consequently the human population are protected from storms because of the ecosystems like marshes, coral, reefs, swamps and mangroves.²⁰⁰ Another product of biodiversity, plant and animal alike is their utility in medicine, as some of these species are used in the pharmaceutical industry.²⁰¹

¹⁹⁸ Ibid

¹⁹⁹ Ibid

²⁰⁰ Michelle D. Staudinger, Nancy B. Grimm, Amanda Staudt, Shawn L. Carter, Stuart F. Chapin III, Peter Kareiva, Mary Ruckelshaus, and Bruce A. Stein, 'Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment', *Tech. USGCRP*, (July 2012), Web 2 Feb. (2014)

²⁰¹ National Wildlife Federation, 'What is Biodiversity?', (2014)

The importance of biodiversity in the ecosystem needs not be stated, however it is essential to note that it contributes heavily to the balance of the ecosystem, and stabilizes its processes.²⁰²

b. Adjusting to Disturbances

Biodiversity can and may survive natural processes that are destructive for instance diseases or natural calamities. This is explained by the fact that if organisms are similar in genetic make-up in a certain setting, then it is more probable that there will be changes in the ecosystem, and some might be negative changes, whilst if there are genetic variety the opposite might be true.²⁰³ Technological advancement has contributed in addressing this issue positively. However there are instances where the impact has been undesired, in the case where pesticides and other chemical solutions have formed a drug resistant strain that has affected the human population, flora and fauna alike.²⁰⁴ Some organisms may be unaffected by the change, and even mutate, hence the development of drug resistant organisms. This demonstrates how biodiversity can survive and thrive in disturbances or changes in their natural habitat. Another example of adjustment of biodiversity in extreme changes, is when it occurs after volcanic eruptions. They destroy all forms of life with their heat, except for some unique type of organism known as thermophiles or heat-loving bacteria.²⁰⁵ In other instances, the natural disasters might cause the destruction of a species, but not fully. In this case the organism might evolve and actually depend on this change for

²⁰² Dave McShaffrey, 'Ecosystems', *Marietta College*, (10 Jan 2008), Web (08 Mar 2014)

²⁰³ K. C. King, and C. M. Lively, 'Does Genetic Diversity Limit Disease Spread in Natural Host Populations?', *Heredity* **109** (2012) pp. 199-203 Web (8 Mar 2014)

²⁰⁴ E. Yoko Furuya, and Franklin D. Lowy, 'Antimicrobial-resistant Bacteria in the Community Setting', *Nature Reviews Microbiology* **4.1** (2006), pp. 36-45, Print

²⁰⁵ 'Succession', *Marietta College*, 14 Oct (2013), Web. 8 Mar (2014)

reproduction. For example the Jack Pine whose scientific name is the *Pinus Bankisiana*, is not able to reproduce without the presence of intense forest fire.²⁰⁶ It is evident as well that biodiversity is crucial in ensuring that throughout natural disasters or diseases, the ecosystem still flourishes.²⁰⁷

d. Direct Loss of Biodiversity

Despite the ecosystem and biodiversity in particular being able to withstand the natural disasters at times, at other times it is unable to do so successfully. However the rate at which there is loss of biodiversity especially through human agencies is disappointingly increasing.²⁰⁸ This loss can occur either directly or indirectly. Direct loss of biodiversity can be caused by factors such as hunting of exotic species, or deforestation. Indirect biodiversity loss on the other hand can be caused by climate change or pollution. When deforestation happens mainly for the purposes of creating arable land for large scale farming or whether agricultural or for manufacturing of raw produce, its effects are adverse on biodiversity. Deforestation is not just happening in developing countries but all over the world. In countries like the Democratic Republic of Congo, the United States, China, and Brazil, the rate at which forests are cleared is not only alarming but also unsustainable. This activity in turn also leads to the direct loss of biodiversity in these forests.²⁰⁹ Up to 20% of the Amazon forest has been wiped out in the last 40 years, which in comparison to the cumulative 450

²⁰⁶ David Herring, 'Evolving in the Presence of Fire', *Earth Observatory NASA*, (1999) Web. (08 Mar 2014)

²⁰⁷ Melody Flores, 'Affluent Populations and Their Effect on Biological Diversity through the Consumption of Meat, Electronics, and Motor Vehicles'

²⁰⁸ Jonah Rockström et al, 'A Safe Operating Space for Humanity', *Nature* **461.7263** (2009), pp. 472-75 Print

²⁰⁹ Melody Flores, 'Affluent Populations and Their Effect on Biological Diversity through the Consumption of Meat, Electronics, and Motor Vehicles'

years before colonization began is alarming.²¹⁰ These forests are home to numerous plant and animal species, who lose their natural habitat because of these activities.

Another cause of loss of biodiversity is the overexploitation of natural resources, which often are oil or coal, forests, or fish stocks.²¹¹ The problem of overfishing has become significant in the last few decades, as most countries are witnessing the depletion of their fish stocks.²¹² The ocean covering over 71% of the earth, one may find it hard to believe that there is a shortage of fish, with only about 10% of the large fish remaining.²¹³ The extraction of resources such as coal, metals and oil can and does damage the environment, upsetting the biodiversity, and at times it proves very hard and usually presents itself as impossible to restore order in the ecosystem

Hunting might not be a common activity amongst people, but the small number of people who do indulge in the illegal activity cause a lot of impact on the state of the planet's biodiversity. There are numerous species that have become extinct because of hunting, including but not limited to the Tasmanian tiger or the dodo and the passenger pigeon in some countries.²¹⁴ Africa is at great risk of loss of biodiversity because of hunting, various exotic species are targets of poachers. For example the white Rhino is under serious threat of extinction as well as Asia's Javan Rhino.²¹⁵ Many African states are also alarmed by the high

²¹⁰ Scott Wallace, 'Farming the Amazon', *National Geographic*, (Jan 2007) Web (07 Mar 2014)

²¹¹ Melody Flores, 'Affluent Populations and Their Effect on Biological Diversity through the Consumption of Meat, Electronics, and Motor Vehicles'

²¹² Ibid

²¹³ 'Gulf of Mexico Dead Zone. Digital image', *NOAA*, (4 May 2010) Web (25 Apr 2014)

²¹⁴ Bryan Nelson, '13 Animals Hunted to Extinction', *MNN. Mother Nature Network*, Web (09 Mar 2014)

²¹⁵ Matthew Knight, 'Western Black Rhino Declared Extinct', *CNN. Cable News Network* (06 Nov 2013) Web (09 Mar 2014)

rate of poaching of elephants for ivory, with some governments setting up agencies and other measures to control the illegal trade. There also different international laws and agreements aimed at protecting wildlife from extinction, because their extinction is a significant loss of biodiversity.

e. Indirect Loss of Biodiversity

Climate change and pollution are responsible for the indirect loss of biodiversity. Consumption of products can cause pollution. Emission of Green House Gases (GHG) can pollute the air, so can carbon dioxide fumes from cars and aero planes. Acid rain can be created from coal industries that emit sulfur dioxide into the atmosphere.

Contamination of water or its pollution has also negative impacts on aquatic life, and leads to their death. This when contaminated soil and other waste is dumped or ends up in water sources.²¹⁶ The rate at which deforestation is occurring is also not encouraging, as forests are essential in the exchange of carbon dioxide in the atmosphere. Clearing of these for livestock farming does not help matters much as they now are linked to GHG emissions.²¹⁷ This because of the presence of ruminants used in meat production that contain methane, which is one of the GHG and contributes to climate change.²¹⁸ Within the period of a decade, there is considerable pollution from aero planes, which is a common means of transport mainly for the affluent communities, notably in the global North. The 1990 IPCC report gave

²¹⁶ Allister Slingenberg, Leon Braat, Henny Van Der Windt, Lisa Eichler, and Kerry Turner, 'Study on Understanding the Causes of Biodiversity Loss and the Policy Assessment Framework', *Rep. Rotterdam: ECORYS Nederland BV*, (2009) Print

²¹⁷ 'CGIAR Big Facts', *CGIAR, n.d*, Web (09 Mar 2014)

²¹⁸ 'Ecosystem Effects', *EPA. Environmental Protection Agency*, (1 Nov 2011) Web (23 Apr 2014)

indications as to how emissions from aero planes and motor vehicles had serious impacts on the environment, and potential threat to biodiversity because of climate change.²¹⁹

The loss of habitat for various species is a serious concern that can lead to their extinction.²²⁰

The consumption rate of affluent populations is also a worrying thing for the state of biodiversity.²²¹ The combustion of fuels, whether oil or coal release gases that deplete the ozone layer and causes climate change and ultimately loss of biodiversity. The loss of biodiversity does not just spell doom to the environment but also to the human population as well.²²²

5.2 North South Debate on Environmental Policies

Many scholars question the requisite pre-conditions necessary to ensure there is mutual cooperation among states on environmental governance. The success of international regimes, their formation as well has been the subject of scholars of international theories.²²³

There are various theoretical frameworks already established that explain the conceptual issues surrounding the creation and enforcement of international regimes. They include epistemic community models as well as game theories, structural theories and institutional bargaining models. These conceptual frameworks do not apply particularly to environmental politique.²²⁴

²¹⁹ 'Reduce Climate Change', *U.S. Department of Energy*, (2013) Web (09 Mar 2014)

²²⁰ 'Threats to Biodiversity', *The Nature Trust of British Columbia*, (2012) Web (10 Mar 2014)

²²¹ 'Ecosystem Effects', *EPA. Environmental Protection Agency*

²²² 'International Energy Statistics', *U.S. Energy Information Administration*, (2011) Web (11 Mar 2014)

²²³ B.A. Simmons and S. Haggard, 'Theories of International Regimes', *International Organization*, **Vol. 41** (1987), pp. 491-517; O.R. Young, 'Global Environmental Change and International Governance', *Millenium*

²²⁴ G. Porter and J.W. Brown, 'Global Environmental Politics, Boulder', *Colorado, Westview Press*, (1991), pp. 23-26

Conceptual approaches to creating international environmental policies, should be cognisant of the fact that there are economic, political and social factors that are crucial in decision making. A common mistake is the assumption that states have similar interests and values or attitudes, that they are a single unit. In hinder sight, they are actually motivated by their individual national interests which they will attempt to actualize at any cost, this is evidently reflected in negotiating and implementation of international environmental policies. The expansion of environmentalist groups or as they are commonly referred to as ‘the green movement’, as well as advancement in science and technology has contributed not only in shaping public opinion but as well as setting the agenda for environmental regime change as well as direct contributions to the creation and enforcement of international environmental policies. These factors inform the listed factors which are dynamic in nature in understanding the challenges experienced in the attempt to achieve mutual cooperation amongst states, in regards to global environmental governance.²²⁵

1. The amenability of states to cooperate in enforcing international environmental policies is dependent on a number of issues. Mainly it is their perception of the threat at hand. The threats and impacts of environmental degradation are not equal across the board, and some states will be more affected than some. Thus making those less affected unmotivated to cooperate or and cheat, and free ride on mutual agreements. The other determining factor is the proximity of the threat at hand, based on the physical location of the state in question, then some might be reluctant to take action as they may not see the urgency to do so. In the case of climate change, there are nations that are already suffering its impacts and for some

²²⁵ Ayşe Gülgün Tuna, ‘Environmental Scarcities And North-south Relations’, *The Turkish Yearbook*, Vol. XXIV, (1994)

states it might take time, for them to fully experience its effects. This situation brings to attention the debate of equity and fairness if not justice in global governance, as the cost of and implications of climate change are not equally distributed, even if the perpetrators are as many as can be counted.²²⁶ Of particular concern are nations that are in risk of rising sea levels whose coastal plains are usually densely populated. Global warming has put countries such as Egypt and the Netherlands at high risk of rising sea levels. Some states are already grappling with rising sea levels more so Islands who have already formed an association; the Association of Small Island States (AOSIS) whose main role is to mobilize support for the plight of these states and as well push for action to mitigate the impacts being felt by these states as well as accountability from the states responsible for emission of GHG which are the main cause of climate change. These situation is further complicated by other states who prefer the rise of global temperatures and the result effect of melting of the ice caps and polar caps in particular. A welcomed change to the harsh cold temperatures that they are accustomed to.²²⁷

2. Another challenge is the fact that perceptions of states on issues of sustainable development and environmental protection are as varied as the number of states there are. For developing countries they argue that there are intentional efforts of undermining their initiatives and efforts to grow their economies for development, through pressure from the schools of environmental protection and sustainable development. Agendas they insist are being set by the global North. They argue that they will go through the same industrialization process that propelled the North into development. The effects of the overexploitation of

²²⁶ G. Bryner, 'Implementing Global Environmental Agreements', *Policy Studies Journal*, **Vol. 19** (Spring 1991), pp. 103-114

²²⁷ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations'

natural resources by the North in the past were not quickly manifested. At the present however the effects are clearly visible. Despite this situation, Southern countries to use the same economic models of growth to propel themselves to developed status.²²⁸ The question of equity and fairness has been contentious in regards to creating and enforcing international environmental policies. The United States, the People's Republic of China and the former Soviet Union are blamed for contributing over half of the planet's GHG emissions in the past, as well as currently. Therefore many states have asked these countries to bear the brunt of the burden of global warming, a condition that they are not amenable to. There is also a huge problem of trying to establish the reduction targets for different states.²²⁹

3. International environmental politics are also heavily determined by the interests of states in regard to their economic processes. Some nations might oppose some regimes because it affects their economic growth activities and processes in one way or the other. Japan has openly opposed any international regime that is aimed in regulating or controlling in any way the timber trade. This is because of their vested interests in the industry as its companies are involved in logging of timber from the forests in Papua New Guinea, Philippines, Malaysia and Indonesia. The interests of timber producing countries are also not pro-environmental protection but are rather on the increase of the prices of timber and funding to source for better technology. Malaysia which is the leading exporter of timber- over 60% of world exports- is the most vocal advocate for these interests. The International Tropical Timber Organization is the umbrella group for timber consuming countries of which Japan is party to. This organization frowns upon any effort or interference in the timber trade through

²²⁸ Ibid

²²⁹ Ibid

international environmental policies. It's just not the producers and direct consumers of tropical timber who have vested interests in the timber trade. Consumers of finished tropical hardwood products as well are involved in decision making. Countries like the United States have also relayed their reluctance in the international control or the extreme extent of international ban on the timber trade as they are secondary consumers of tropical timber.

4. Another crucial obstacle has been public participation or lack thereof, in environmental issues. For most developed states, the level of public awareness on issues of environmental conservation is high, and this can inform domestic policy and action to some extent. For example countries like the United State, the United Kingdom, France, Sweden and Canada were pressured by their citizenry into attending the 1972 UN Stockholm conference on the environment. There are numerous instances where a state has been influenced by its citizens to sign or ratify an international environmental treaty. For the developing states, the situation might be different. Realizing the fact that in some of these states there are environmental groups agitating for environmental conservation, the scale of which can't be compare to that of the developed states, public awareness in these developing states on environmental is not high. Public interest in environmental issues is overshadowed by more pressing interests those that are economic and political in nature. Priorities for citizens in these nations are limited to economic and socio-political factors that they perceive are directly related to their livelihoods and their general wellbeing. This means that most of developing nations governments are responsible and accountable to themselves in regards to environmental conservation. They are also in charge of the domestic and international policies as well as actions.

5. The capacity of states to implement or enforce international environmental agreements, also determines the cooperation expected and actually received from different states. Some states may oppose some international regimes because of their ability to implement them. The proposal might present difficulties in the implementation or might be costly for some member states. More often than not, most programmes requiring the attention and cooperation of states will require states to have skilled labour or personnel as well as advanced technological capabilities, not forgetting the capital for the capacity of these factors, just to implement them. States will look at where and how their interests are served before agreeing to any international regime. For example in the 1980s the US was in support of a ban on aerosol cans as a mitigation measure against ozone depletion. Countries like Japan and others in Western Europe did not support the ban, because they didn't have an alternative, whereas the US had found a substitute by the use of technology.²³⁰²³¹

6. Finally the anarchic nature of the international system is also an existing obstacle to the probable cooperation amongst states. This is due to states national interests that may be interfered with by international environmental policies.²³² The anarchic nature is not the only factor accountable for the non-existing state of cooperation amongst states, but also because there is the wide gap in power and affluence amongst states, and other group units such as regions.²³³ Because of the state of development of the Southern countries, their eagerness to exploit natural resources in the hopes of achieving development status is obvious. This despite their seemingly support for sustainable development. This action being informed by

²³⁰ Ibid

²³¹ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations', *The Turkish Yearbook*, Vol. XXIV, (1994)

²³² Hurrell and Kingsbury, 'The International Politics of the Environment', p. 4

²³³ Ayşe Gülgün Tuna, 'Environmental Scarcities And North-south Relations'

economic growth models of that mirror those that propelled the North into development. Similar vested interests can be said of the global North. There are numerous instances where some developed countries have opposed international regimes that they perceive to interfere with their national interests or will somehow infringe on their lifestyles of affluence or in any way will affect their economies. This they consider too high a price to pay for protection of the environment.

There is little hope for cooperation amongst states in issues regarding international trade and environmental protection. This mainly over the varied interests of states and their nature to protect like pollution, climate change, deforestation and hazardous waste trading and relate issues like population policy. The challenges experienced in creating and enforcing international environmental policies are lodged on the North-South relations poor relations on the issue. It is highly unlikely that the relationship will improve.²³⁴

5.3 Global Economic Governance and the Environment

Scholars of economics, international relations, or law have been looking at issues of international environmental and international economics.²³⁵ There are different arguments rising from the linkages of these variables. Debates as to whether the global economics is increasingly destroying the environment and the best way to manage the impacts of environmental destruction. These debates, continue to inform scholars, and key policymakers in the global environmental governance.²³⁶

²³⁴ Ibid

²³⁵ Jennifer Clapp, and Peter Dauvergne. 'Paths to a Green World: The Political Economy of the Global Environment', *Cambridge MA: MIT Press*, (2005)

²³⁶ Kate O'Neill, 'The Environment and International Relations', *Cambridge University Press, New York*, (2009)

A group of scholars as well argue that the problems arising from the management of international environmental problems stem from the theoretical framework. Conceptual issues do not highlight the interlinkages between economic globalization and international environmental governance. For the policy makers of international regimes, who follow the neo-liberalist or institutional model, have been ignoring the role of economic globalization. The literature on international environmental policies is also skewed towards neo-liberalists models a factor that needs to be changed or expanded.²³⁷ There is also need to concert efforts from the existing international economic structures and regimes. International Organisations such as the IMF and WTO, are critical on forming international environmental policies.²³⁸ This perspective is bent on refocusing attention on international economic structures and regime as the drivers for change in management of these issues.

5.4 Impact of Mining on the Physical Environment

Mining is economically beneficial to a state in a very significant way depending on the quantity and quality of the resource. However these economic benefits might come at a very expensive economic cost.²³⁹ The extractive industry takes a toll on the environment due to the intensive process and the waste generated that is hazardous. Mining is second to agriculture as a main source of pollution on the African continent.²⁴⁰ All the various stages of mining have serious impacts on the natural environment. There are various ways the

²³⁷ Marc Williams, 'International Political Economy and Global Environmental Change.' *The Environment and International Relations*, Edited by John Vogler and Mark F. Imber. London: Routledge, (1996)

²³⁸ Matthew Paterson, 'Interpreting Trends in Global Environmental Governance', *International Affairs* **75.4** (1999), pp. 793–802

²³⁹ J. A. Adekoya, 'Environmental Effects of Solid Minerals Mining', *Journal of Physical Science* (2003), pp. 625-640

²⁴⁰ I. Aigbedion, and S. E. Iyayi, 'Environmental Effects of Mineral Exploitation in Nigeria', *International journal of physical sciences* **2 (2)** (2007), pp. 033-038

environment can be affected by mining. Their different activities that take place during mining, including exploration, development of sites for mining, the actual extraction of minerals, processing of these minerals, transportation and other post mining activities have impact on the environment. Other than that the social and cultural development of the community can also be degraded. All manner of pollution can and does occur during mining, water, soil, noise, air as well as deforestation, land degradation. Other problems arise from the poor disposal of hazardous waste which can lead to health defects.²⁴¹ The nature of these impacts elucidates the reasons for immediate attention, as all these problems could lead to conflict, violent or otherwise domestically or internationally as well, as most of these issues are trans-border issues. ²⁴²

In Nigeria the main factor exposing the environment and the society to destruction and degradation is the fact that preventive and mitigation measures are hardly taken during extractive processes. This problem is made even worse because of the lack of awareness and interest by a huge population. These situations being in contravention of the Minerals and Mining Act of Nigeria, a policy document that sets out processes for the extraction industry in Nigeria. Policy that is up to standard with international environmental policies.²⁴³

Methods of resolving natural resources based conflicts are as varied as there are countries involved these type of conflicts. For Bolivians the solution was popular participation with a

²⁴¹ Twerefou D. K., 'Minerals Exploitation, Environmental Sustainability and Sustainable Development in EAC, SADC and ECOWAS Regions', (2009)

²⁴² Babagana Gutti, Mohammed M. Aji and Garba Magaji, 'Environmental Impact of Natural Resources Exploitation in Nigeria and the Way Forward', *Journal of Applied Technology in Environmental Sanitation*, Vol 2 (2), (2012)

²⁴³ Dr. Ike Ifeanyi et al., 'Mining in Nigeria: The good, the bad and the ugly', *The Tribune*, November 2010, Nigeria (2010)

referendum in mind. The issue warranting a referendum being the question of control of gas resources that had been tied to conflict in the country. The approach was confining and limiting as it only had five issues addressed in the referendum questions. Other than that most of the residents felt that it was skewed in favour of the government. Either way the outcome was successful in cooling down political temperatures in the country and enabled an environment for resource management.²⁴⁴ São Tomé and Príncipe decided on an extensive bottom up approach in resolving conflicts related to the oil sector in the country. A national forum for consultation was held in 2004, where members of public were able to discuss the economy of the country particularly the oil sector and the conflicts related to it. The government provided information to the public about the oil sector, the number and size of the reserves, the revenue from the oil and its impact on the society, as well as educating the public on the budgeting process. The process of consultation began at the grassroots through small forums where the community chose their representatives for the national dialogue. More importantly they gave their thoughts on the governance of their natural resources as well as their priorities. These approaches are not foolproof and have to be tested extensively to find out if they actually work. They need to be evaluated as well on their effectiveness on changing perception and attitude towards the management of natural resource management.

Consultations would be beneficial for companies in the extractive industry as the public becomes less suspicious of their activities and as well as enlighten them on the risks involved and the measures needed to eliminate or minimize these risks. Stakeholder engagements are important as well as informal meetings with the local communities, who are directly affected

²⁴⁴Erin Mccandless And Tony Karbo, ' Peace, Conflict,And Development In Africa', *University For Peace Printed In Switzerland*, (2011)

by the extractive process. Local communities as well as other stakeholders are able to air any of their concerns through this process and in essence prevent or manage any arising conflicts that might occur. However there is difficulty in identify the consultative process that yields the best results in that, there are less conflicts between the mining companies and the community including other stakeholders like environmental advocacy groups. Or better yet a consultative process that is effective in managing disputes or conflicts arising from the extractive process. Studies have been conducted to this effect, none as conclusive and thus the need for more studies.²⁴⁵

Though exploitation of natural resources has a lot of benefits, seeing as they are the building blocks of many countries whether developing or developed, care must be taken in exploiting these resources. This is because the threat of damage to the environment, through poor disposal of hazardous waste or through the pollution, or deforestation and or the loss of biodiversity, is too great a threat for any ecosystem.²⁴⁶ Good practices should be employed during these processes such ensuring that focus is on minimizing waste rather than looking for ways of disposing it. This can be done through legislation. ²⁴⁷:

- Companies in the extractive industry should provide a blueprint of how they will restore the environment during the mining and or the exploration processes
- These companies should be able to use equipment that will minimize or prevent pollution of the environment all together.

²⁴⁵ Ibid

²⁴⁶ I Aigbedion, and Iyayi, S. E Ambrose Alli, 'Environmental effect of mineral exploitation in Nigeria', *University, Ekpoma-Nigeria*, (2007)

²⁴⁷ Ibid

- The government agencies responsible for natural resources and or mining should be able to receive an Environmental and Social Impact Assessment from the companies involved in extraction of the resources, as well as plan as to how they will monitor the impacts of the activities they will carry out. This should be done before they are issued with a license for exploration or mining.²⁴⁸

²⁴⁸ Ibid

5.5 The Case of Arabuko Sokoke Kenya

Environmental Impacts

Criteria and ratings

Earthview Ltd. assessed impacts that may result from planned and unplanned events for the project. The following criteria should be useful in assessing the usefulness and level of Environmental Impact Assessment, and based the risk/impacts determination on the criteria and ratings specified:²⁴⁹

Firstly the examining the character of the receiving environment. One should determine beforehand if the area demarcated for exploration is a protected area in regard to conservation or if it is subject to any national or international treaties. It is also crucial to identify establish if the area identified is significant or potentially significant to the environment or to the ecosystem as a whole. The level of threat or vulnerability to great hazards whether natural or manmade. Other important issues to address include; the vulnerability of the human communities located near the site, is it identified as special or potentially special purpose site, is there already degradation present that raises the risks of further destruction to the area.

Potential Impacts

After looking at the issues useful in an EIA, one must also examine the potential impacts that will rise due to exploration or mining activities.

²⁴⁹ Erin Energy, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy', (2014)

- Usually the construction and other activities that take place during a seismic study or any exploration process can cause long term or short term changes to the environment, whether on site or offsite. Could implementation of the proposed activity/installation give rise to health impacts or unsafe conditions?
- Issues of water usage are important to assess as potential impacts, as at times extraction activities might divert water sources affecting not only the human communities dependent on these water sources but also the flora and fauna in the area.

It is crucial to consider to what extent these impacts will occur and if they are manageable in any way. This consideration also includes the size and range of these impacts as well as the duration- is it long term or short term, and if the changes are permanent and to what extent do they affect the overall ecosystem.

Resilience of Natural and Human Environments to Cope with Change

Despite the negative threats posed on the environment at times they can be controlled by the environment. Thus it is important for one to be aware to what extent can the natural environment and the human population be able to adapt to changes caused by the exploitation of natural resources. First one must be able to assess if the changes are irreversible and if they are within a range that the environment can be able to absorb or adapt to the changes.

It is also key to be able to establish if the land is usable during the exploration or mining activities. As well as if the land can be used after these activities have taken place. The national agencies concerned with exploitation of natural resources should be able to ascertain

that the companies conducting exploration and mining have provided and have put plans in place to deal with any emergencies arising from the activities in place.

Looking at issues of sustainability, it is essential to look at the individual and ultimately cumulative impacts that can be caused by extractive processes.

Confidence of Prediction of Impacts

There is also need for being able to conclusively estimate the impacts of extraction activities.

- By having a body of knowledge on how the environment is able to absorb the changes from extraction activities.
- There needs to be a definite and explicit blue print on the technology being used and its impact on the environment, all this should be comprehensible, so as to anticipate potential threats and devise ways to eliminate or minimize them.
- Comprehension of the magnitude of changes in the natural environment is important even to other stakeholders including the communities affected by the extraction activities.
- There needs to be a plan for monitoring and evaluation of the effects rising from exploration and or mining activities.
- Changes in land use must also be considered especially in regard to its utility to the community during and after extraction processes.

Presence of Planning, Policy Framework and Other Statutory Decision Making Process

- Policy frameworks for the site areas identified should be considered, before any installation of equipment and to ensure that it is consistent with the existing zones set out in the policy framework.
- There should also be consideration of other laws, statutes or policies national or international alike that assess and make recommendations on issues of environmental impact assessment.
- Consideration for all the guidelines or legislation available must be made to be able to conduct processes in the proper and expected way, so as to minimize or eliminate risks to the natural environment.

Degree of Public Interest

- Awareness and inclusivity of the local community and other stakeholders is important so as to dispel any suspicions arising over the activities of extraction
- The impact on the community in terms of their livelihoods, lifestyle or cultural values has to be assessed as well.
- The potential of conflict between communities on matters of inequity or perceived unfairness must also be assessed, to provide for an action plan.

Trans-boundary and Cumulative Impacts

Trans-boundary impacts are impacts that occur outside the jurisdictional borders of a project's host country. Potential CAMAC Energy project trans-boundary impacts were considered to include:

- Social and economic issues surrounding the sourcing of labour, goods and services from the international market; and
- GHG emissions to air.

Cumulative impacts which rose from:

- Interactions between separate project-related residual impacts; and
- Interactions between project-related residual impacts in combination with impacts from other projects and their associated activities.

These can be either additive or synergistic effects, which result in a larger (in terms of extent or duration) or different (dependent on impact interaction) impacts when compared to project related residual impacts alone.

The assessment of Cumulative Impacts considered the potential for impact interaction and accumulation in terms of the following:

- Temporal Overlap – the impacts are so close in time that the effect of one is not dissipated before the next one occurs; and
- Spatial Overlap – the impacts are so close in space that their effects overlap.

Mitigation and Monitoring

Mitigation measures were identified and impacts reassessed to obtain residual impact significance for planned and unplanned activities. The determined mitigation measures were detailed in the ESMP along with monitoring frameworks to be implemented during the project.

5.6 The Way Forward

For a balance to be achieved between the exploitation of natural resources and international environmental protection policies or for an attempt to be made, there needs to be consistent studies being made as changes occur in the economy and the environment. The adoption of material stewardship as well as its implementation is highly recommended in ensuring that there that the impacts of economic development motivated activities have minimal impacts on the environment.²⁵⁰

There needs to a consistent push for improvement on technology other than techniques that are used in the process of extraction of minerals to realize minimal impact on the environment during these processes. There not only needs to be an Environmental Impact Assessment (EIA) but one that is not only well documented but one that has a framework that outlines enforcement plans as well as provide capacity for monitoring and evaluation. This will not only inform related government agencies of the risks involved in exploiting natural resources but also will enable the companies involved in this activities to prevent or minimize damage that can be caused by the activities of exploitation of natural resources, as well as restore or compensate for the damage caused, after providing detailed reports of the same.

The functionality of gas and oil pipelines should be beyond reproach, so as to avoid leaks and spills that have negative environmental impacts. Policies on issues such as gas flaring and oil

²⁵⁰ I. Aigbedion, and Iyayi, S. E Ambrose Alli, 'Environmental effect of mineral exploitation in Nigeria',

spills should not be neglected, remedies that are sound on the best industrial technology should be undertaken immediately.²⁵¹

Activities such as afforestation, bioremediation, recycling, the control of pollution, waste reduction and proper disposal should not be left to the extractive companies or government agencies but should be inclusive processes. The public through social groups or communities should be able to participate in these processes, as part of popular participation, but also as a means of raising awareness about environmental conservation.

There should be a system as well that looks into detail the implementation of policies related to exploitation of natural resources and environmental conservation, and have capacity for sanctions if these policies are not adhered to.

The need for collaboration with different stakeholders in issues related to exploitation of natural resources and environmental protection is often understated. Domestic stakeholders such as national governments, environmental conservationist groups, academics and research institutions, as well as international stakeholders such as the United Nations Environmental Programme (UNEP), United Nations Development Program (UNDP), Environmental Protection Agency (EPA) are instrumental in establishing information systems aimed at monitoring the processes of exploitation of natural resources, to establish the magnitude of damage on the environment, to initiate remedy measures, to prevent these threats from occurring and to undertake studies to find ways to ensure there is a more sustainable solution to this problem.

²⁵¹

In the case of Arabuko Sokoke forest, the seismic lines, where possible, should be made in such a way as to avoid, homesteads, water pans, natural drainage lines and lug gas and road crossings. Existing access ways should be considered for usage as much as possible. During the planning of seismic lines, established vegetation, and sensitive soils, should be avoided if possible. Considerations should be made to follow established access roads and river crossings. CAMAC Energy should consider sourcing unskilled labour from the project area. The company should use local leaders to sensitize the neighbouring community about the project and its possible temporary noise and vibration impacts. The communities should be informed in advance when a seismic survey operation is to be executed along a given seismic transect/location.

5.7 Conclusion

Most national economies are dependent on the exploitation of natural resources. With the growing population, the need to exploit natural resources has never been higher and with that there has been the rise of urbanization and ultimately global economic growth. All these factors unfortunately have put pressure on the natural environment, threatening the sustainability of the ecosystem. Negative impacts such as pollution of the environment, or the destruction or loss of fauna and flora, or the destabilization of the ecosystem, not forgetting climate change, are all a result of overexploitation and use of resources at greater rate than that the natural environment can restore itself.

It is important to note that, the environment provides us with resources that without which the human population cannot exist. It is thus very important for matters environmental protection to be treated with the seriousness they deserve. However this should not be enough a reason for states with natural resources not to exploit them. It being obvious that these resources are also beneficial to man. How they are extracted and used is a subject of concern however. Awareness of damage that can be caused by the processes of exploiting natural resources is already a step towards being eco-sensitive. However more should be done in terms of ensuring that threats to the environment are not only mitigated but also prevented, to ensure mankind can continue to enjoy services from the natural environment.

Technology is perhaps the one of the best if not the best way for the prevention or mitigation environmental degradation of the environment to be achieved. This approach might ultimately attempt to find the balance between the activities of exploitation of natural resources and the enforcement of international environmental policies and ultimately to protect the environment.

REFERENCES

- Adekoya, J. A., 'Environmental Effects of Solid Minerals Mining', *Journal of Physical Science* (2003), pp. 625-640
- Adepelumi, A.A, et al, 'Model tank electrical resistivity characterization of LNAPL migration in a clayey-sand formation', *Environ. Geol*, Vol 50, pp. 1221–1233 (2006)
- Agarwal Anil, Sunita Narain, and Anju Sharma, eds, 'Green Politics', New Delhi: Center for Science and Environment Approach', *London: UCL Press*, (1992)
- Aigbedion, I., 'Environmental Pollution in the Niger-Delta, Nigeria', *Inter-Disciplinary J. Enugu-Nigeria*, Vol 3(4) pp. 205–210. (2005)
- Aigbedion, I., and S. E. Iyayi, 'Environmental Effects of Mineral Exploitation in Nigeria', *International journal of physical sciences* **2 (2)** (2007), pp. 033-038
- Aigbedion, I., et al, 'Environmental effect of mineral exploitation in Nigeria', *International Journal of Physical Sciences*, Vol. 2 (2), (2007) pp. 033-038
- Areola, O., K. Ahmed, O.I. Irueghe, B.O. Adeleke, and G.C Leong, (1992) 2nd edition, Reprinted (2009)
- Atchia, M., 'Environmental management: Issues and solutions', *Chichester* (1995)
- Baldwin, David A., ed, 'Neorealism and Neoliberalism: The Contemporary Debate', *New York: Columbia University Press*, (1993)
- Barnett, Michael N. and Martha Finnemore, 'The Politics, Power, and Pathologies of International Organizations', *International Organization* (1999), pp. 699–732
- Beck, Ulrich, 'Risk Society: Towards a New Modernity', *London: Sage*, (1992)
- Bernauer, Thomas, 'Managing International Rivers. Global Governance: Drawing Insights from the Environmental Experience' *MIT Press, Cambridge*, (1997)

- Bernstein, Steven, and Benjamin Cashore, 'Can Non-State Governance Be Legitimate? A Theoretical Framework', *Joint IDDRA, CIRAD and Sciences-Po Research Unit Conference* (Montpelier, France, 2006)
- Blackhurst, Richard, 'The Capacity of the WTO to Fulfill Its Mandate: The WTO as an International Organization', Edited by Anne O. Krueger, *Chicago: University of Chicago Press*, (1998)
- Bodansky, D., 'The art and craft of international environmental law', *Cambridge, Mass: Harvard University Press*, (2010)
- Bodansky, D., J. Brunnée, & E. Hey, 'The Oxford handbook of international environmental law', *Oxford: Oxford University Press*, (2007)
- Boonstra, Jos, Edward Burke, and Richard Young, 'The Politics of Energy: Comparing Azerbaijan, Nigeria and Saudi Arabia', *FRIDE 68 working paper 2(3)* (2008), pp. 34-78
- Boulding, Kenneth, 'The Economics of the Coming Spaceship Earth. The Earthscan Reader in Environmental Economics', Edited by Anil Markandya and Julie Richardson, *London: Earthscan Publications, Ltd*, (1992)
- Browen, M., 1999, 'The Price of Oil' Human Rights Watch', (1999)
URL:<http://www.unhcr.org/refworld/docid/3ae6a82e0.html> (Accessed 21 May 2012)
- Bryner, G., 'Implementing Global Environmental Agreements', *Policy Studies Journal*, **Vol. 19** (Spring 1991), pp. 103-114
- Budnuka, Alexander Chinago, Aloni Clinton, and Chukwunma Agi-Otto, 'The Effect of Unplanned Exploitation of Environmental Resources: The Nigeria's Experience',

- Journal of Environment Pollution and Human Health*, vol. 3,(2) (2015) pp. 39-45.
doi: 10.12691/jephh-3-2-3
- Buttel, Frederick H., Hawkins, Ann. P., & Power, Alison. G., ‘From Limits to Growth to Global Change: Constraints and Contradiction in the Evolution of Environmental Science and Ideology’, *Global Environmental Change* **1.1** (1990), pp. 57–66
- CGIAR Big Facts’, *CGIAR*, *n.d.*, Web (09 Mar 2014)
- Changing the Atmosphere: Expert Knowledge and Environmental Governance’ *MIT Press*, *Cambridge*, (2001).
- Clapp, Jennifer, and Peter Dauvergne. ‘Paths to a Green World: The Political Economy of the Global Environment’, *Cambridge MA: MIT Press*, (2005)
- Climate Change: The IPCC Response Strategies’, Rep **Vol. 3** N.p IPCC, 1990. Print. WG III *Formulation of Response Option Strategies*
- Conca, Ken, ‘Environmental Governance after Johannesburg: From Stalled Legalization to Environmental Human Rights?’ *Journal of International Law & International Relations* **1.1–2** (2005), pp. 121–38
- Conca, Ken, ‘Governing Water: Contentious Transnational Politics and Global Institution Building’, *Cambridge MA: MIT Press*, (2006)
- Conca, Ken, ‘The WTO and the Undermining of Global Environmental Governance’, *Review of International Political Economy* **7.3** (2000), pp.484–94
- D. K. Twerefou D. K., ‘Minerals Exploitation, Environmental Sustainability and Sustainable Development in EAC, SADC and ECOWAS Regions’, (2009)
- Deudney, Daniel, ‘The Case against Linking Environmental Degradation and National Security’, *Millennium* **19.3** (1990)

- Diamond, Jared, 'Collapse: How Societies Choose to Fail or Succeed', *New York: Viking Press*, (2005)
- Ding, Yifan, 'Impacts of Affluence and Overexploitation of Natural Resources', *Institute of World Development, Development Research Centre of State Council, People's Republic of China*, (2009)
- Dr. Ifeanyi Ike et al., 'Mining in Nigeria: The good, the bad and the ugly', *The Tribune, November 2010, Nigeria* (2010)
- Eckersley, Robyn, 'Environmentalism and Political Theory: Towards an Ecocentric Approach', *London: UCL Press*, (1992)
- Ecosystem Effects', *EPA. Environmental Protection Agency*, (1 Nov 2011) Web (23 Apr 2014)
- Edwards, Paul N., 'Representing the Global Atmosphere: Computer Models, Data, and Knowledge About Climate Change', in (eds) Clark A. Miller and Paul N. Edwards,
- Efole, Mathew A., 'Environmental Degradation and Economic Impact of Oil Exploration in Isokoland', *second National Convention of Isoko Association of North America, Quality Hotel Hempstead, New York City USA*, (2014)
- Egmond, Wim Van, 'The Smallest Page on the Web', *Microscopy UK Micscape*, (2004) Web (09 Mar 2014)
- EIA, 'Annual energy outlook with projections 2015', Place of publication not identified: *Energy Dept* (2015)
- Energy, Erin, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16,' *In Kilifi County By Camac Energy*, (2014)

- Energy, Erin, 'Environmental And Social Impact Assessment Project Report For The Proposed 2d Seismic Survey In Block L16, In Kilifi County By Camac Energy', (2014)
- European Commission: Economic and Financial Affairs, 'The EU Economy 2004 Review: Protecting The Environment And Economic Growth: Trade-Off Or Growth-Enhancing Structural Adjustment?'
- Fawundu, Alfred S. Fawundu, 'Niger Delta Human Development Report 2006', *UN House, 617/618, Diplomatic Zone, Nigeria*, (2006) pp. 76
- Flores, Melody, 'Affluent Populations and Their Effect on Biological Diversity through the Consumption of Meat, Electronics, and Motor Vehicles', *Honors College Theses, Paper 140*, (2014)
- Forest Conservation and Management Act, (2015)
- Frequent Questions | ECycling', *EPA. Environmental Protection Agency*, (12 Nov 2012) Web (31 Mar 2014)
- Furuya, E. Yoko, and Franklin D. Lowy, 'Antimicrobial-resistant Bacteria in the Community Setting', *Nature Reviews Microbiology* **4.1** (2006), pp. 36-45, Print
- Gabriel, A.O.L. Gabriel, R.L. Fagbenle, and Jaja, 'The History of Science and Technology in Perspective, Afrika', – *Link Books*, (1998)
- Garrett, Hardin, 'The Tragedy of the Commons', *Science* **162** (1968), pp. 1243–8.
- Garrett, Hardin, 'The Tragedy of the Commons', *Science* **162** (1968), pp. 1243–8
- Geick, Peter H., 'Water and Conflict: Fresh Water Resources and International Security', *International Security* **18.1** (1993), pp. 79–112

- George, T. S., 'Words on Marble', *Published by Alpheaus Paul Worika and Barr. David Okoroafor*, (2010)
- Gigerenzer, G., & Dahlem Workshop, 'Bounded rationality: The adaptive toolbox: Report of the 84th Dahlem Workshop ,Berlin, March 14-19, 1999', *Cambridge, Mass. u.a.: MIT Press* (2001).
- Giplin, Robert, 'U.S. Power and the Multinational Corporation: The Political Economy of Foreign Direct Investment', *New York: Basic Books*, 1975. 'Global Political Economy: Understanding the International Economic Order', *Princeton: Princeton University Press*, (2001)
- Global Warming Potentials', *United Nations*, (2014) Web (09 Mar 2014)
- Grüne-Yanoff, Till, 'Bounded Rationality', *Royal Institute of Technology, Stockholm, Sweden* (2007)
- Gulf of Mexico Dead Zone. Digital image', *NOAA*, (4 May 2010) Web (25 Apr 2014)
- Gurr, Ted, 'On the Political Consequences of Scarcity and Economic Decline', *International Studies Quarterly* **29.1** (1985), pp. 51–75
- Haas, Peter M., 'Environment: Pollution, Managing Global Issues: Lessons Learned', Edited by P.J. Simmons and Chantal de Jonge Oudraat, *Washington DC: Carnegie Endowment for International Peace* (2001)
- Haas, Peter M., 'UN Conferences and Constructivist Governance of the Environment', *Global Governance* **8.1** (2002)
- Helm, Dieter & Pearce, David, 'Economic Policy Towards the Environment', *Oxford Review of Economic Policy* **7.4** (1990), pp. 1–16

- Herring, David, 'Evolving in the Presence of Fire', *Earth Observatory NASA*, (1999) Web.
(08 Mar 2014)
- Hobson, John M., 'The State and International Relations', *Cambridge: Cambridge University Press*, (2000)
- Homer-Dixon, Thomas F., 'On the Threshold: Environmental Changes as Causes of Acute Conflict', *International Security* **16.2** (1991), pp. 76–116
- Huntington, Samuel, 'The Clash of Civilizations and the Remaking of the World Order', *Simon and Schuster, New York*, (1996)
- Hurrell and Kingsbury, 'The International Politics of the Environment', p. John, Vidal, 'Nigeria's Agony Dwarfs the Gulf Oil Spill the US and Europe', (2010)
- Hyginus, B. O., 'The Niger Delta Environment, its Local Geography', *Prelyn Publishers*, (2003)
- International Energy Statistics', *U.S. Energy Information Administration*, (2011) Web (11 Mar 2014)
- Interview with Augustine Nkuba
- Jain, R.K. and S. S. Rao, 'Industrial Safety, Health and Environment Management System', (2009)
- James, Gustave Speth, 'Red Sky at Morning: America and the Crisis of the Global Environment', *New Haven CT: Yale University Press*, (2004)
- Jasanoff, Sheila , 'Heaven and Earth: The Politics of Environmental Images', 'Earthly Politics: Local and Global in Environmental Governance', Edited by Sheila Jasanoff and Marybeth Long Martello, *Cambridge MA: MIT Press*, (2004)

- Jasanoff, Sheila, 'Image and Imagination: The Formation of Global Environmental Consciousness', *Changing the Atmosphere: Expert Knowledge and Environmental Governance*, Edited by Clark A. Miller and Paul N. Edwards, *Cambridge MA: MIT Press*, (2001)
- Jinnah, Sikina, 'Managing Overlapping Regimes: International Bureaucratic Agency or Just More Red Tape?', *University of California at Berkeley*, (2008)
- John, Pezzey, 'Economic Analysis of Sustainable Growth and Sustainable Development', *Washington D.C.: World Bank, Environment Department Working Paper No. 15*, (1989), Published as 'Sustainable Development Concepts: An Economic Analysis', *World Bank Environment Paper No. 2*, (1992)
- Kahl, Colin H., 'Population Growth, Environmental Degradation, and State Sponsored Violence: The Case of Kenya, 1991–93', *International Security* **23.2** (1998), pp. 80–119
- Karl, Terry Lynn, 'The Paradox of Plenty: Oil Booms and Petro-States', *Berkeley: University of California Press*, (1997)
- Kaya, M., 'Environmental Impacts of Mineral Resource Exploitation and Use', *Osmangazi University, Technological Research Center (TEKAM)*, (2001)
- Kelsey, M. G., & T.E. S. Langton, 'The conservation of the Arabuko - Sokoke forest, Kenya', *Cambridge* (1984)
- Kenyan Constitution 2010

- KFS, 'Arabuko- Sokoke Forest, Kenya', (2016) Retrieved on 7th October, 2016 from
 <http://www.kenyaforestservice.org/index.php?option=com_content&view=article&id=76&Itemid=522>/
- Khagram, Sanjeev and Saleem Ali, 'Environment and Security', *Annual Review of Environment and Resources* **31** (2006), pp. 395–411
- Khagram, Sanjeev, James V. Riker, and Kathryn Sikkink, eds, 'Restructuring World Politics: Transnational Social Movements, Networks, and Norms', *Minneapolis: University of Minnesota Press*, (2002)
- King, K. C., and C. M. Lively, 'Does Genetic Diversity Limit Disease Spread in Natural Host Populations?', *Heredity* **109** (2012) pp. 199-203 Web (8 Mar 2014)
- King, W. Chris, 'Understanding International Environmental Security: A Strategic Military Perspective', *Army Environmental Policy Institute AEPI-IFP-1100A* (November 2000)
- Klawitter, Simone, 'China's Agenda 21, White Paper on China's Population, Environment and Development In 21st Century', *Environmental Policy Research Centre, Ihnestr. 22, 14195 Berlin*, (2004)
- Knight, Matthew, 'Western Black Rhino Declared Extinct', *CNN. Cable News Network* (06 Nov 2013) Web (09 Mar 2014)
- Kooroshy, Jaakko, et al, 'Conflict and Coexistence in the Extractive Industries', *A Chatham House Report*, (2013)
- Kumar, S., 'Environmental protection', *New Delhi: Northern Book Centre*, (2009)
- Lovelock, James, ' Gaia: A New Look at Life on Earth', *Oxford: Oxford University Press*, (2000)

- Lowi, Miriam R., 'Bridging the Divide: Transboundary Water Disputes and the Case of West Bank Water', *International Security* (1993)
- Mccandless, Erin And Tony Karbo, ' Peace, Conflict,And Development In Africa', *University For Peace Printed In Switzerland*, (2011)
- McGinnins, Michael Vincent, ed, 'Bioregionalism', *London: Routledge*, (1999)
- McNeill, J.R., 'Something New Under The sun. An Environmental History of the Twentieth-Century World' *W.W. Norton and Company, New York* (2000)
- McShaffrey, Dave, 'Ecosystems', *Marietta College*, (10 Jan 2008), Web (08 Mar 2014)
- Mitchell, Ronald B., 'International Environmental Agreements: A Survey of Their Features, Formation and Effects', *Annual Review of Environment and Resources* **28** (2003), pp. 429–61
- Najam, Adil, 'Dynamics of the Southern Collective: Developing Countries in Desertification Negotiations', *Global Environmental Politics* 4, 3 (2004), pp. 128–54.
- National Evolutionary Synthesis Center (NESCent), 'Biodiversity Higher in the Tropics, but Species More Likely to Arise at Higher Latitudes', *Science Daily*, (22 Nov 2013) Web (09 Mar 2014)
- Nelson, Bryan, '13 Animals Hunted to Extinction', *MNN. Mother Nature Network*, Web (09 Mar 2014)
- O'Neil, Kate and Stacy VanDeveer, 'Transnational Environmental Activism after Seattle: Between Emancipation and Arrogance, Charting Transnational Democracy: Beyond Global Arrogance', Edited by Janie Leatherman and Julie A. Webber, *New York: Palgrave Macmillan*, (2005)

- Oberthur, Sebastian and Thomas Gehring, 'Institutional Interaction in Global Environmental Governance: The Case of the Cartagena Protocol and the World Trade Organization', *Global Environmental Politics* **6.2** (2006), pp. 1–31
- Paris, Roland, 'Human Security: Paradigm Shift or Hot Air?', *International Security* **26.2** (2001), pp. 87–102
- Patey, A., 'State Rules: Oil Companies and Armed Conflicts in Sudan', *Third World Quarterly. Exploitation of natural resources* **18(2)** (2007), pp. 1-19
- Patterson, Matthew, 'Interpreting Trends in Global Environmental Governance', *International Affairs* **75.4** (1999), pp. 793–802
- Poter, G., and J.W. Brown, 'Global Environmental Politics, Boulder', *Colorado, Westview Press*, (1991), pp. 23-26
- Raustiala, Kal and David G. Victor, 'The Regime Complex for Plant Genetic Resources', *International Organization* **58.2** (2004), pp. 277–309
- Reduce Climate Change', *U.S. Department of Energy*, (2013) Web (09 Mar 2014)
- Retrieved from [http://www. Cidgas.org](http://www.Cidgas.org).
- Rockström Jonah et al, 'A Safe Operating Space for Humanity', *Nature* **461.7263** (2009), pp. 472-75 Print
- Rosendal, Kristin G., 'Impacts of Overlapping International Regimes: The Case of Biological Diversity', *Global Governance* **7** (2001), pp. 95–117
- Rosendal, Kristin G., 'Overlapping International Regimes: The Case of the Intergovernmental Forum on Forests (IFF) between Climate Change and Biodiversity', *International Environmental Agreements* **1** (2001), pp. 447–68

- Ross, Michael, 'A Closer Look at Oil, Diamonds, and Civil War', *Annual Review of Political Science* **9** (2006), pp. 265–300
- Rowlands, Ian H., 'Classical Theories of International Relations: International Relations and Global Climate Change', Edited by Urs Luterbacher and Detlef F. Sprinz, *Cambridge MA: MIT Press*, (2001)
- Sachs, Wolfgang, ed, 'Global Ecology: A New Arena of Political Conflict', *London: Zed Books*, (1993)
- Schwartz, Daniel and Ashbindu Singh, 'Environmental Conditions, Resources, and Conflicts', *United Nations Environmental Programme*, (1999)
- See 'Environmental Security', USEPA, (Washington, D.C., 1999)
- See UNEP (1997)
- See USEPA, 'Environmental Security',
- See, 'Kyoto Protocol to the United Nations Framework Convention on Climate Change' (1997)
- See, 'Status of ratification' Retrieved on December 1, 2015 from http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php
- See, 'United Nations Framework Convention on Climate Change' (1992)
- Selby, Jan, 'Water, Power and Politics in the Middle East: The Other Israeli-Palestinian Conflict', *London: IB Tauris*, (2003)
- Selin, Henrik & VanDeveer, Stacy D., 'Mapping Institutional Linkages in European Air Pollution Politics', *Global Environmental Politics* **3.3** (2003), pp. 14–46
- Selten, Reinhard, 'What is Bounded Rationality?' *Paper prepared for the Dahlem Conference 1999* (May 1999)

- Seyfang, Gill, 'Environmental Mega-Conferences from Stockholm to Johannesburg and Beyond', *Global Environmental Change* **13** (2003), pp. 223–8
- Simmons, B.A., and S. Haggard, 'Theories of International Regimes', *International Organization*, **Vol. 41** (1987), pp. 491-517; O.R. Young, 'Global Environmental Change and International Governance', *Millenium*
- Slingerbag, Allister, Leon Braat, Henny Van Der Windt, Lisa Eichler, and Kerry Turner, 'Study on Understanding the Causes of Biodiversity Loss and the Policy Assessment Framework', *Rep. Rotterdam: ECORYS Nederland BV*, (2009) Print
- Sohn, Louis B. 'The Stockholm Declaration on the Human Environment', *Harvard International Law Journal* **14** (1973), pp. 423–515.
- Staudinger, Michelle D., Nancy B. Grimm, Amanda Staudt, Shawn L. Carter, Stuart F. Chapin4III, Peter Kareiva, Mary Ruckelshaus, and Bruce A. Stein, 'Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment', *Tech. USGCRP*, (July 2012), Web 2 Feb. (2014)
- Succession', *Marietta College*, 14 Oct (2013), Web. 8 Mar (2014)
- Susskind, Lawrence E., 'Environmental Diplomacy: Negotiating More Effective Global Environmental Agreements', *New York: Oxford University Press*, (1994)
- The Economist- Guru 'Herbert Simon' March 9th 2009 Retrieved from <http://www.economist.com/node/13350892> on 12th October 2016
- The Green Belt Movement: Nobel Peace Prize', Retrieved from <http://www.greenbeltmovement.org/wangari-maathai/the-nobel-peace-prize>
- Threats to Biodiversity', *The Nature Trust of British Columbia*, (2012) Web (10 Mar 2014)

- Turner B. L. et al, 'Two Types of Global Environmental Change: Definitional and Spatial-Scale Issues in Their Human Dimensions', *Global Environmental Change* **1.1** (1990), pp. 14–22
- UNESCO, 'MAB Regional Training Workshop, Akure, Nigeria, 23–26 July', pp. 314–323 (1995)
- United Nations Development Programme. Human Development Report, 1994', *New York: Oxford University Press*, (1994)
- United Nations Environment Programme, GEO 4: Environment for Development', *Nairobi: United Nations Environment Programme*, (2007)
- United Nations Sustainable Development, 'Agenda 21', *United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992*, (1992)
- VanDeveer, Stacy, 'Sea Changes and State Sovereignty. Saving the Seas: Values, Scientists, and International Governance', Edited by Anatheia L. Brooks and Stacy VanDeveer, College Park MD: Maryland Sea Grant, (1997) 'Green Fatigue', *Wilson Quarterly* (2003), pp. 55–59
- Vidal, John, 'Nigeria's Agony Dwarfs the Gulf Oil Spill the US and Europe Ignore It', URL: [.http://www.gurdian.co.uk/world/2010/may/30/oil-spills-nigeria-niger-delta-shell](http://www.gurdian.co.uk/world/2010/may/30/oil-spills-nigeria-niger-delta-shell) (2010)
- Wallace Scott, 'Farming the Amazon', *National Geographic*, (Jan 2007) Web (07 Mar 2014)
- Wapner, Paul, 'World Summit on Sustainable Development: Toward a Post-Jo'burg Environmentalism', *Global Environmental Politics* **3.1** (2003), pp. 1–10

- Watts, Michael, 'Petro-Violence: Community, Extraction, and Political Ecology of a Mythic Commodity Violent Environments', Edited by Nancy Lee Peluso and Michael Watts, Ithaca: *Cornell University Press*, (2001)
- Weinthal, Erika and Jones, Pauline Luong, 'Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth', *Perspectives on Politics* **4.1** (2006), pp. 37–55
- Weyland, K. G, 'Bounded rationality and policy diffusion: Social sector reform in Latin America', *Princeton, N.J: Princeton University Press*, (2006)
- What Is Biodiversity?', *California Biodiversity Council*, (2008)
- What is Biodiversity?', *National Wildlife Federation*, (2014)
- White, Rodney, 'North, South, and the Environmental Crisis', *University of Toronto Press*, (1993)
- Why Is There so Much Biodiversity in Tropical Rainforests?', *Rainforest Conservation Fund*, (2014) Web (09 Mar 2014)
- Williams, Marc, 'International Political Economy and Global Environmental Change.' *The Environment and International Relations*, Edited by John Vogler and Mark F. Imber. *London: Routledge*, (1996)
- World Energy Council, 'World Energy Resources Survey 2013' Retrieved from https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf on 12th October 2016
- Yav, Joseph, 'The Curse of Oil in the Great Lakes of Africa', (2007) Retrieved on 6th October 2016 from

<http://www.globalpolicy.org/security/natres/oil/2007/1003greatlakes.htm> Accessed on 17th April, 2009

Young, Oran R., 'Institutional Linkages in International Society: Polar Perspectives', *Global Governance* 2.1 (1996), pp. 1–24

Young, Oran R., 'International Governance: Protecting the Environment in a Stateless Society', *Ithaca: Cornell University Press*, (1994)

Young, Oran R., 'The Institutional Dimensions of Environmental Change: Fit, Interplay and Scale', *Cambridge MA: MIT Press*, (2002)

APPENDICES

Appendix I: Interview with Erin Energy Managing Director

Interviewee: I think we should start by you telling me your course and what you hope to achieve after this interview then you go to the questions.

Interviewer: My topic is exploration of natural resources and international environmental policies and the case of Arabuko sokoke in Kilifi. I am trying to see the problems African states face whenever they discover minerals and oil that can be used to fast-track development in their states, especially oil which is a key factor in industrialization and most African states have put as their agenda in order to develop Kenya being one of them. However every time such minerals are discovered there is always some concerns raised by international organizations and local conservation groups siting international and environmental policies.

Interviewer: so let me just explain the case of Arabuko sokoke forest and then I will tell you exactly how it is being done.

Interviewee: So before we start any survey ground or field survey we have to send a team to do what is called environmental and social impact assessment. So in this environmental and social impact assessment we look at aspects such as how the people making a living out of the forest will be affected and how the fauna and the flora will be affected at the end. This environmental and social impact assessment will come up with measures how to mitigate potential risks that may be facing so it's worth caring out a survey.

So this environmental social survey usually makes a report and I will show you an example of that report before we finish it is one of the big books inside there. So when we start tracing

everything it really is complete and once this report is used it has to go to NEMA which is National Environmental Management Authority. It has to go to NEMA and NEMA will take a close look it as I have told you it is a big document. After that they will ask questions and they will give us a conditional approval asking a number of questions that we have to respond to clearly making commitments to meet all the requirements.

Once they have received a letter from us they issue a license to go and carry out whatever survey they were to carry. In the case of the arabuko sokoke forest we did that. There were two major surveys. The first one is called the Gravity and magnetic survey this is the survey to have an idea of the density of the rock underneath the forest. This survey can be done in two weeks it can be done while working in the forest or can be done by a small aircraft flying that is called aero gravity and magnetic. So that's what we did therefore there was no impact on the forest because an aircraft was used but for the size width we were supposed to go into the forest and do the survey so let me show you exactly what we wanted to do. For that are you going to keep on recording?

Interviewer: Yeah it's fine. It's ok and also if I can get the same document so that I can write you as a source.

Interviewee: Its fine you can write me as a source. I wanted to show you this because what we went through really tough times with the conservationists and the environmentalists when we were about to acquire ourselves the data so what we do is I will show you a couple of charts. This is a license from NEMA authorizing us to go and conduct our survey and I can give you a copy if you want. These are some of the conditions. This is what we want to do. You see the green part that is the forest and we are supposed to have some seismic lines

going to the forest but we had a lot of problems with the environmentalists and eventually we decided not to acquire the seismic within the forest. This one shows the forest and these are the plants. You see here these are the lines we acquired. This one here you see it goes beyond the forest so we did not acquire it. This one as well. So these two portions of land we decided to delete them. The reason is not because we are not going to do a good job we know what we were supposed to do. We explained and we wait actually to see the ministry in charge of the resources and land, explain to them exactly what we wanted to do and how we are going to do it also how we are going to protect the environment and things like that.

That was clearly explained but still what happened with the environmentalists is a matter of philosophical divide, they don't want any oil drilling to take place in the forest period. Regardless of what you tell them they don't want to hear about any oil exploration in the forest. So it made a lot of noise and what these people did is they went to see a reporter from Times of London to come here and put a penalty that a big oil company wants to destroy the forest. It was a very negative act. At that point I will say we looked at the survey and said this two lines here is only 27 kilometers we were not going to compromise 27 kilometers out of 525. That is less than almost 5% of what we want to do. So what I told my organization it's a US based company so what I told them that is we are not going to jeopardize the entire survey for only 5% of it.

We had to cancel the two lines in the forest. One of the things is that we had to go to every equipment into scale before the and it is like that before they have meetings from these guys the Nature Kenya. The Nature Kenya came here and took a lot of notes and we conducted the survey and we have tracks for people to see and know what we are doing.

So the seismic survey is about sending shock waves into the ground and the shock waves are reflected by a layer of the ground called stratus.

The stratus reflects and we measure them and then we are able to tell or have an idea of how the structure of the ground is where there are faults. This gives an idea of where the oil must be, that is seismic. Seismic is a mandatory survey before you even think of drilling for oil. We have not done our survey in the forest but we have done our homework to make sure that if we were to carry a seismic survey in the forest it was going to be in full specs environmental requirements in terms of international laws and that is why NEMA actually gave us the license because we assured them that we would do what is supposed to be done to protect the environment but unfortunately we did not do that so you see on this map here now, it is a Google map it shows the forest and the sensitive sites such as the malindi marine park which we have to protect and we did. We decided not to go into the forest but the rest was done.

No one complained and actually people are asking when are we going to go back The reason we have not gone back soon is because in between the price for crude oil dived so badly that everyone is kind of waiting to see the money we spend here is restored it's just pure restoration and is not making any money and there is no indication of making any money. The money we are using here we are talking about millions of US dollars. Therefore, the money we are using is coming from our production is Nigeria because we are four African countries Nigeria being the biggest.

We have to go back to the forest to block L-16 in kilifi to carry out our survey There is one thing that scared the environmentalists, we were not going to the forest with trucks that is what would scare the animals and the environmentalists but what actually scared people is

that we were going to use explosives. Although there is nothing to fear with explosives. When we talk about explosives is that we have to dig holes and it is directional and therefore cannot harm any person or animal. Hearing that explosives would be used in the forest that was too much for the conservationists and the environmentalists. So that's what we did and we did everything according to NEMA's requirements in order to protect the environment the fauna and the flora.

Yes, the seismic that we did here and there shows that the land is potential. We would sign a contract with the government and our duty is to tell if there is oil here or not. That is our duty. The decision to extract it would then be the government's call. So if we tell the government there is oil worth 3billion shillings what will the government do?

Interviewer: Now that's my thesis, what should the government do?

Interviewee: Exactly so after me you will have to go and see the government and say if your government discover oil in this forest and it is a lot of oil, what are you going to do. Because eventually it is going to b there call. I believe there is a better way of extracting this oil without harming the environment. I was telling nation that I work for an international country but am also African and I think I was also involved in a similar problem in Virunga Game Park. Virunga game park is along Lake Albert near the Ugandan side. That is where oil was discovered and we had a similar problem but now the thing is that these people's lives are based in the forest as bee keepers but at the same time if oil were to be drilled what they are getting from the bee keeping would be highly compensated. Like I said it's the governments call. We can drill outside the forest. We can drill vertically or horizontally.

Interviewer: Is that more expensive?

Interviewee: Yes, it is more expensive but it is doable. Unlike in Turkana oil here in the coast can be drilled and taken to the tankers very easily due to the proximity to the ocean. Any it is expensive but when it is development that is normally what we do. I will show you. This is the map of and on the ground we have layers so let's say you put your Derik hereto drill like this so let's say oil is here because the usual we have oil gas and water. So using horizontal drilling we can catch s much oil as possible. Therefore, depending on where the oil is we can drill anywhere near the forest just nit inside the forest. On the other hand, if the forest is big and we have to go into the forest then it will not be the first case. It is doable provided we take all precautions to protect the environment.

Interviewer: Let me ask, you have mentioned NEMA as one of the people who give you clearance if they are satisfied by your plans to safeguard the environment. Are there any other international actors who are involved or is it just the national government?

Interviewee: No, it's the National government and the government agency but NEMA is set according to national and international laws and regulations so that when NEMA checks our environmental and social impact assessment report they check the rules, regulations and laws to see if we are in compliance with them but us being international company our standards most of the time come from other countries and most of the time is higher than what is in the country. Most of the time especially if in the US company can major in the type of regulations that is there and actually most of our own regulations in our African countries are following the same as what is being done in Europe and in America.

Interviewer: In terms of situations like what has happened in the forest has it happened before in other countries and how it reduces such issues where you have environmentalists

coming up and saying that these explorations should not be done or mining should not be done. Have you had similar cases and how have you resolved similar issues?

Interviewee: Not as herein energy. Kenyan is the only country where we have exploration on the shore. In other countries it is off shore so Kenya is our first but as a group we tried to get an exploration block in DRC although that was not a forest that was a game park so it is not a forest but it is a similar issue. Most of the time you have to show the community that you are conserving the environment. So have to give them an alternative in case you interfere with their businesses but most of the time if we cannot agree with people we just give up. The government once more agrees if it will go for the oil or no. If the public pressure is too much for us we find another area where we can do our exploration without causing conflict or issues for other groups. In an open society like Kenya where the press and every one can write people can speak its easier for people to express themselves.

Interviewer: So if for example the government says let us go ahead with mining, what is your capacity in terms of technology to protect the environment as you do exploration or mining?

Interviewee: In terms of technology there are two things. The drilling technology is actually the same so what we do is to put in place measures to protect the environment. We protect the environment this way, when drilling we have a lot of waste so we have to put in place systems to isolate and collect all this waste and not leave them scattering here and there. Also avoid any oil spillage and put systems to collect any spillage that may occur and this is existing technology. Most importantly localize your operations subway and whenever possible avoid drilling in the forest and recourse to horizontal drilling which is a key technology and now very common.

When we started as young engineers we did not have that all we had was vertical and was somehow tilting a bit but now we can drill horizontally and we will not even touch the forest and this is happening about 2000 kilometers underneath the ground so no one will even hear anything That is horizontal drilling therefore drilling the oil outside the forest and leaving the forest untouched. If the forest is too big if you have to go inside the forest, then you have to isolate and localize where you will be conducting the operation and put in place a waste management system and put in place safety measures and a good restoration program in case you damage something you have to restore it. In the NEMA report they ask you to actually have a good restoration plan and after the seismic that is what we did but that was only applicable to the forest and it is also applicable anywhere else we can have a seismic survey, we have to restore the place back to the we found it.

Now I will show you an example of the environmental impact assessment report. This is from block L-16. It has to address all the issues of the work so this is the environmental impact assessment project report and it is in 2D that means you can look at the plan in one dimension then another dimension. Then we hit 3D which is like looking in a cube. This is the report which was submitted to NEMA who went through its and sent conditional letters. This report is not only talking about the arabuko sokoke forest but everything that is found in the block. The laws we are talking about are explaining even the seismic. It also has the Kenyan constitution and the national policy. The research and the survey is done based on the policies and to comply with these policies. It also shows the potential risks and issues and how to mitigate them. This assessment is for the seismic. When seismic is done and we pick a spot where it is to be done then we have to go for drilling and we need another assessment for drilling. Drilling is a localized operation but in drilling you have to acquire length and

have the operation there you have to be well protected but to do that we have to have another assessment for the area where the drilling is to be done Therefore there will be another report for drilling and the report will be sent to NEMA and NEMA will view it to make sure that it complies with all the environmental requirements and if they are ok and then we will be ready to drill. We therefore select the technology which will help to minimize any damage to the environment.

Interviewer: If now for example you have started drilling off shore, you have been focusing on offshore drilling elsewhere but now you have this scenario in Kenya where you have to focus on on-shore, going forward and you have already hinted to another possible conflict though structural and not violent in DRC. I am not saying that there is a conflict, what am saying is that perhaps the more the more you do onshore....

Interviewee: We don't have plans to go to the Congo right now.

Interviewer: I am just saying hypothetically the more you do oil and gas exploration, it attracts a lot of attention from environmentalists, the community and there is always a bit of structural conflict and as you said the responsibility rests with the government. I if you were to advice any government or the Kenyan government on a way forward. Is there a structural issue in terms of a miscommunication between the environmentalist or other groups and communities? How would your advice governments when they start looking at exploration or mining? How can they conduct it in a manner that the community is also involved and aware?

Interviewee: That is a very good question. First of all, the government is not doing anything. The government is actually for all. If I am the government I will not spend any money on exploration. A good example is that last year we used almost 100 million dollars and we

were not guaranteed to find oil and if we don't discover oil that money is simply lost. If I am the government, why would I spend all that money while there are other things the money can be used on. That should be left for risk takers. Therefore the government will always make contracts with companies such as Shell such a company for example ours, will assure the government that this is the right way to carry out exploration. For example, in the forest our goal will be to minimize any damage impact to the environment and to the people.

There is a technology for risk management, waste management mitigation and things like that. Most importantly if it is a forest we use horizontal drilling since we cannot drill into the forest depending on the reservoir and where it is placed and especially in the case of this forest and where it is placed we may recourse to horizontal drilling which will help. So that is what I will tell the government that yes, it is expensive but there is actually a way to do it.

You have mentioned that you have done research on the other areas except on L-16 and on the forest, so far have you done conclusive studies on how much oil could be in that area, like the quantity on oil in that area?

Not yet. Anything we can say now is an idea that oil might be there but that I cannot release because I cannot allow myself to have a number that cannot be verified based on the seismic but for our company just like any other company if we are giving something up we have to make sure that it is there. Otherwise we have an idea that is why we want to go back and carry out a 3D seismic and the 3D seismic will help have even a better opportunity to know the potential structure that we think there must be some oil. 3D will help but the only way to know whether there is oil is by drilling. Drilling requires 40 million dollars. This is for

drilling onshore offshore is 150 million dollars so before we spend 40million dollars we have to make sure that we drill on the right spot. This is the reason why we do all these surveys.

Interviewer: Is this 40million dollars for a whole block?

Interviewee: No that is just for one well.

Interviewer: Does that mean that one block will have multiple wells?

Interviewee: Not really it actually depends on what we will discover. If we drill one well and there is nothing we have to think twice before drilling another. We have to increase the likelihood of success in the other well. If more than two wells come out as dry, then that means there is nothing considering that we used technology to find an almost accurate spot.

Your question about oil exploration is a long process basically our contract with the government we have a minimum of six years to tell the government if there is oil or not and after six years or so if there is no oil we have to give back the block. As explorers we are aware that there is that risk. This is not like mining where you do your studies and you come find the minerals. Oil is very difficult to discover That is why no one will lend you money if you are a pure exploration company because there is no education that you will discover oil and be able to pay back that is why the money we use here has to come from somewhere and if that somewhere is also experiencing problems then exploration is difficult. The alternative will be to boost production to gain more money through increased production while prices are going down. The thing is if you increase production then the supply is much bigger than the demand and that may trigger another down cycling of prices. The problem we are facing today is that the supply of oil is bigger than the demand has set prices down.

Interviewer: Are you planning to go back to perform a seismic research in arabuko sokoke?

Interviewee: No, it was going to take a lot of time resources and the problem with them was not about minimizing damage it was philosophical divide about exploration in the forest. The government did not defend it left us alone it did not help us. Therefore, we could not risk a project of 525 kilometers for 27 kilometers. Conservationists and the environmentalists are sometimes right but other times they just argue for the sake of victories.