"A LEGAL ANALYSIS OF THE CLIMATE CHANGE CONVENTION

AND THE KYOTO PROTOCOL AND ITS RELEVANCE

TO UGANDA WITH SPECIFIC EMPHASIS ON

THE CLEAN DEVELOPMENT

MECHANISM"

BY ATWIJUKIRE DENNIS

REG. NO. LLB/11854/61/DU

SUPERVISOR

MR. JEFFREY ATWINE

A DISSERTATION SUBMITTED TO THE FACULTY OF LAW IN PARTIAL

FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD

OF THE BACHELORS DEGREE OF LAWS

OF KAMPALA INTERNATIONAL

UNIVERSITY

JUNE 2010

DECLARATION

I, Atwijukire Dennis declare that this Report on "A Legal Analysis of the Climate Change Convention and the Kyoto Protocol and its Relevance to Uganda with Specific Emphasis on the Clean Development Mechanism" is solely my effort and has not been presented to any institution for any academic award whatsoever. However, any sources of information are duly acknowledged.

Atwijukire Dennis Student's Name:

REG NO:

LLB/11854/61/DU

i

Date. 20.09.10 Signature:

APPROVAL

This research "A Legal Analysis of the Climate Change Convention and the Kyoto Protocol and its Relevance to Uganda with Specific Emphasis on the Clean Development Mechanism" has been under my supervision and is now ready for submission to the Faculty of Law of Kampala International University for the award of Bachelor of laws degree.

Supervisor: Mr. Jeffrey Atwine

Signature:....

Date: 20.09.10.

DEDICATION

I dedicate this piece of work to my parents; Mr. and Mrs. E. Babitsigaho, for their selfless parental guidance, encouragement and financial support in my academic career. I also dedicate it to the First Lady of the Republic of Uganda Mrs. Janet K. Museveni who helped me financially to see that I complete my course.

ACKNOWLEDGEMENT

I appreciate all the people that financially and psychologically contributed to my academic life. First and foremost am grateful to my supervisor Mr. Jeffrey Atwine, for his endless criticisms and guidance, all of which enabled me to accomplish this study.

Am also indebted to my lecturers especially those from the Faculty of Law for imparting professionalism into my work, which greatly aided in the writing of this paper especially Dr. Andrew Bashaija, Mr. Joseph Kyaze and Mr. Sewaaya Muhamud.

Special thanks go to my parents Mr. and Mrs. E. Babitsigaho for their love, care, encouragement and the inspiration they gave to me during the study. I would also like in a special way wish to thank the First Lady of the Republic of Uganda Mrs. Janet K Museveni who contributed a lot to see that I finish this course. I cannot fail to acknowledge the contribution of my friends; Amon Tumwesigye, Duku Simon, Musinguzi Julius Atenyi, Pamba Emmanuel, Rogers Kiganda and my cousins, Peace, Mugasi Seezi and Davis not forgetting my classmates, 2006 – 2010 for their kindness and cooperation.

I am further grateful to Asasira Judith who tirelessly assisted me in the typing of this work and other support she rendered to me.

Thanks for your kindness and cooperation.

May God bless you all

LIST OF ABBREVIATIONS

CDM	-	Clean Development Mechanisms
COP	-	Conference of Parties
CLICOM	-	Climate Computer
CSM	-	Climate System Monitoring
CCDP -		Climate Change Detection Project
DARE -		Data Rescue
ERPA -		Emission Reductions Purchase Agreement
ERA	-	Electricity Regulatory Authority
FWCC-		First World Climate Conference
FAO	-	Food and Agriculture Organisation
GDP	-	Gross Domestic Product
GDF	-	Green Development Fund
GHGS -		Green House Gases
GATS -		General Agreement of Trade in Services
IPCC	-	Intergovernmental Panel on Climate Change
IMO	-	International Meteorological Organisation
INC	-	Intergovernmental Negotiating Committee
IOC	-	Intergovernmental Oceanographic Commission
ICS	-	International Council of Scientific Unions
ICJ	-	International Court of Justice
MEMD	-	Ministry of Energy and Mineral Development
MFPED	-	Ministry of Finance Planning and Economic
Developmen	t	
NFP	-	National Forest Plan
NEMA-		National Environment Management Authority
PEAP -		Poverty Eradication Action Plan
PMA	-	Plan for Modernization of Agriculture
SWCC -		Second World Climate Conference
SD	-	Sustainable Development

۷

SADC - Southern African Development Community								
TBT	-	Technical Barriers of Trade Agreement						
UCCEE	-		UNEP	Collaborating	Center	for	Energy	and
Environment	t							
UIA	-		Uganda Investment Authority					
UNCED	-		United Nations Conference on Environment and					
		Development						
UNFCCC	-	United Nations Framework Convention on Climate						
Change								
UNEP - United Nations Environment Programme								
WMO - World Meteorological Organization								
WCP	- World Climate Programme							
WCDP-		World Climate Data Programme						
WCAP-		World Climate Application Programme						
WCIP -		World Climate Impact Studies Programme						
WCRP -		World Climate Research Programme						
WSSD -	D - World Summit on Sustainable Development							
WTO - World Trade Organisation								

LIST OF CASES

- Case concerning the Gabcikovo Nagymaros project, Hungary-V-s Slovakia (1997)
- 2. Oposa-Vs-Factoran (1993)
- 3. Stitching Greenpeace Council-Vs-commission of European communities (1998)
- 4. Trial smelter case, United States of America-Vs-Canada (1998) and 1941

LIST OF INTERNATIONAL TREATIES

Charter of the United Nations (1945)

Convention on Environment Impact Assessment in Transboundary Context (1991)

Kyoto Protocol to the United Nations Framework Convention on Climate Change (1992)

Montreal Protocol on Substances that Deplete the Ozone Layer (1987)

United Nations Framework Convention on Climate Change (1992)

United Nations Convention on Biological Diversity (1992)

United Nations Convention to Combat Desertification (1995)

Uruguay round Agreement Establishing the World Trade Organisation (WTO) (1994)

Vienna Convention for the Protection of the Ozone Layer (1985)

OTHER INTERNATIONAL LEGAL INSTRUMENTS

- 1. Marrakesh Accords to the Kyoto Protocol (October /November,2001)
- 2. Rio Declaration on Environment and Development (1992)
- 3. Stockholm Declaration on Human Environment (1972)
- 4. UN Assembly Resolution 2849(XXVI)
- 5. UN Assembly Resolution 45/212

LIST OF STATUTES

- 1. Electricity Act No. 6 of 1999
- 2. Forest Act (Cap 246)
- 3. Income Tax Act CAP 243
- 4. Investment Code (No. 1 of 1991)
- 5. Mining Act (Cap 248)
- 6. Petroleum Act (Cap. 97)

TABLE OF CONTENTS

DECLARATIONi
APPROVALii
DEDICATIONiii
ACKNOWLEDGEMENTiv
LIST OF ABBREVIATIONSv
LIST OF CASESvii
LIST OF INTERNATIONAL TREATIESvii
OTHER INTERNATIONAL LEGAL INSTRUMENTSvii
LIST OF STATUTESviii
TABLE OF CONTENTSix

CHAPTER ONE	1
1.0.Introduction	1
1.1.Backgroundto the Study	1
1.2Statement of the Problem	5
1.3.Objectives of the Study	.5
1.4.Research Questions	6
1.5 Significance the Study	6
1.6 Literature Review	.7
1.7 Scope of the Study1	9
1.8 ResearchMethodology1	9
1.8.1 Library and Internet Research 1	.9
1.8.2 Research Design1	9
1.8.3 Obstacles 1	9

1.9 Chapter Synopsis
1.9.1 Chapter One
1.9.2 Chapter Two
1.9.3 Chapter Three
1.9.4 Chapter Four
1.9.5 Chapter Five
CHAPTER TWO
HISTORY OF CLIMATE CHANGE NEGOTIATIONS
2.1 Introduction
2.2 Tracing the Roots of the Climate Change Debate
2.2.1 The Observational Revolution
2.2.2 The Computer Revolution
2.2.3 The Research Revolution
2.2.4 The "Influence of Human Activities on Climate" Revolution
2.2.5 Significance of the Revolutions
2.3. The UN Stockholm Conference on Human Environment, 1972
2.4.0 Beginning of the International Debate on Climate Change: The First World Climate Conference, 1979
2.4.1 WMO Decisions in the Aftermath of the First World Climate Conference. 26
2.5. The Brundtland World Commission on Environment and Development — Our Common Future Report, 1987
2.5.1 Significance of Our Common Future Report on Climate Change
2.6 The Influence of the Ozone Layer Convention on Climate Change
2.7. Intergovernmental Panel on Climate Change (IPCC)
2.8 The Second World Climate Conference and the Adoption of the UNFCCC. 30

2.8.1. Key Tasks of the Second World Climate Conference (SWCC) The k	cey
tasks of the SWCC	31
2.8.2 The Position of Developing Countries at the SWCC	32
2.9. Adoption of the United Nations Framework Convention on Climate Chan	ıge
(UNFCCC)	33
2.10. Adoption of the Kyoto Protocol to the UNFCCC	33
Conclusion	34

CHAPTER THREE
THE CLEAN DEVELOPMENT MECHANISM AND SUSTAINABLE
DEVELOPMENT: THE INTERNATIONAL PERSPECTIVE
3.1 Introduction
3.2 Origins of the Clean Development Mechanism
3.3 The Concept of Sustainable Development (SD)
3.3.1 Application of the SD Concept in the Gabcikovo Nagymaros Project Case38
3.3.2 The Intergenerational Concept
3.3.3 Application of the SD Concept to the Clean Development Mechanism42
3.4 The Concept of Common But Differentiated Responsibilities
3.5 Comparison of Joint Implementation (JI) / Activities Implemented Jointly
(AIJ) and the CDM45
3.6 The Special Role of the Developed World47
3.7 Misgivings of the Developed World: The Case of the US Rejection of the
Kyoto Protocol
3.7.1 Legal Responsibility of the Developed Countries
3.8 The International Legal Framework of CDM51

CHAPTER FOUR
FRAMEWORK FOR THE IMPLEMENTATION OF THE CLEAN
DEVELOPMENT MECHANISM IN UGANDA
4.1. Introduction
4.2 Review of the Policy Framework
4.2.1 The Environment Policy
4.2.2 The Forestry Policy
4.2.3 The Energy Policy
4.3 Review of the Legal and Regulatory Framework
4.3.1 National Environment ACT
4.3.2 The National Forestry and Tree Planting Act, 2003
4.3.3 The Water Act
4.3.4 The Petroleum (Exploration and Production) Act
4.3.5 The Mining Act, 2003
4.3.6 The Electricity Act
4.3.7 Income Tax Act, Cap 243 Laws of Uganda65
4.3.8 The Investment Code, 199165
4.3.9 The National Environment (Waste Management) Regulations, 1999 66
4.3.10 The Water Resources Regulations, 199867
4.3.11 The National Environment (Wetlands, River Banks and Lake Shores
Management) Regulations, 200067
4.4.1 The Department of Meteorology
4.4.2 National Environment Management Authority (NEMA)
4.4.3 The Uganda Investment Authority69
4.4.4 Ministry of Water and Environment70
4.4.5 Ministry of Energy and Mineral Development

4.5	The Potential of CDM Projects in U	Jgand	a	71
4.6	The Role of the Private Sector in C	DM F	rojects	73
4.7	The Socio-Economic Aspects of C	DM I	mplementation	74
4.8	Constraints	in	CDM	Implementation
•••••		•••••		75
4.9	Conclusion		••••••	76

CHAPTER FIVE	77
CONCLUSIONS AND RECOMMENDATIONS	77
5.1 Overview and Approach	77
5.2 Conclusions	77
5.3 Recommendations	80

CHAPTER ONE

1.0. Introduction

1.1. Background to the Study

Global efforts to tackle climate change began with the holding of the first World Climate Conference in 1979 under the auspices of World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP). The major outcome of this conference was the establishment of the World Climate Programme. By the late 1980s, there had developed increasing scientific evidence to the effect that rising concentrations of "greenhouse gases" in the earth's atmosphere resulting from economic and demographic growth over the last two centuries since the industrial revolution could lead to potentially irreversible climate change. Although scientists are still unsure about the exact timing and nature of climate change impacts, efforts to negotiate a climate change treaty gained encouragement in the late 1980s. Basing on the existing scientific evidence then, the WMO and UNEP established the Inter-Governmental Panel on Climate Change in 1988 (IPCC). In 1988, the United Nations General Assembly adopted Resolution 43/53 on the "Protection of Global Climate for present and future generations of mankind". In 1990, the IPCC issued its first Assessment Report in which it called for a global treaty to address climate change. In December 1990, the United Nations General Assembly formally launched negotiations on a Framework Convention on Climate Change by its Resolution 45/212. The United Nations Framework Convention on climate change (UNFCC) was adopted on 9th May 1992. The UNFCCC was opened for signature on 4th June 1992 at the United Nations Conference on Environment and Development (UNCED). Uganda signed and ratified the UNFCCC on the 13th June 1992 and 8th September 1993 respectively. The UNFCCC came into force on the 21st March 1994.

In light of the fact that the UNFCCC simply set out a general framework to tackle climate change related issues, the first conference of parties (COP) held in Berlin (March / April 1995) launched a new round of negotiations to decide on stronger and more detailed commitments for industrialized countries. These negotiations culminated in the adoption

of the Kyoto Protocol on 11th December 1997 in Kyoto, Japan. A new round for negotiations was launched in November 1998 at Buenos Aires to draft the Kyoto Protocol's Rule Book. These negotiations culminated into the adoption of the Marrakesh Accords at Marrakesh in October / November 2001. The Marrakesh Accords contain a detailed Rule Book for the Kyoto Protocol. Uganda acceded to the Kyoto Protocol on 25th March 2002. Under Article 25 of the Kyoto Protocol, its provided that the protocol have to enter into force internationally after ratification by at least 55 states that accounted for at least 55% of the total carbon dioxide emissions in 1990 levels.

The ultimate objective of the UNFCCC is stabilization of greenhouse gas concentrations in the atmosphere in order to allow ecosystems to adapt naturally to climate change; to ensure that food production is not threatened; and to enable economic development to proceed in a sustainable manner¹. The six main greenhouse gases that are the target of the UNFCCC and the Kyoto Protocol are - carbon dioxide (CO₂); Methane (CH₄); Nitrous Oxide (N₂O); Hydrofluorocarbons (HFC_s); Per fluorocarbons (PFC_s); and Sulphur hexafluoride (SF₆). While the UNFCCC notes that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries and per capita emissions in developing countries are still relatively low, it also points out that the share of global emissions originating in developing countries will grow to meet their social and development needs.²

It is generally anticipated that industrial and agricultural activities are likely to be substantially affected negatively by the anticipated global climate change³. This anticipated negative impact is likely to be more pronounced in economies that are to a large extent natural resource based and still underdeveloped. Uganda is primarily an agrarian country with rain fed agriculture contributing about 70% of the Gross Domestic Product (GDP). The agricultural sector accounts for over 95% of the merchandise exports. The agricultural sector provides employment for about 80% of the population

¹ See Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC)

 ²See Recital No. 3 to the United Nations Framework Convention on Climate Change (UNFCCC)
 ³ See Mostafa Kamal Tolba; <u>"Foreword to Fact Sheets of UNEP's Information Unit on Climate Change" (IUCC) undated</u>

and is the main economic base for much of the manufacturing and service industries⁴. It is estimated that, about 50% of the construction industry and 30% of the manufacturing sectors are directly dependent on natural resources⁵. In 1995, the nature based GDP was about $65\%^6$ the above statistical information illustrates that Uganda's economy is largely dependent on natural resources. These natural resources are directly dependent on climate and it follows that the anticipated global climate change will have a significant impact on Uganda's economy.

In addition, the State of Environment Report for Uganda,⁷ noted that while environmental issues have generally been incorporated in government programmes such as the Poverty Eradication Action Plan (PEAP) and the Plan for Modernisation of Agriculture (PMA), both the PEAP and the PMA have not put in place contingency measures to take care of the likely impacts of climate change. It is important that climate change concerns take a centre stage at the national planning level and should among others, be addressed in programmes such as PEAP and PMA, since the success of such programmes is unlikely, in the event of global climate change.

It is also important to note that although the developed / industrialized world accounts for the largest share of global greenhouse gas emissions⁸ with the United States, for instance emitting approximately 66.tons (almost 15,000 pounds of carbon equivalent) of greenhouse gases per person every year, the responsibility to combat climate change impacts cannot entirely lie on the developed World.⁹ This is because the solutions to the global climate change require the concerted effort of all countries in the World including the developing / least developed countries.

⁴ See National Environment Management Authority; state of the Environment Report for Uganda, 1996, page VII

Ibid

⁶ Ibid

⁷ See National Environment Management Authority, State of the Environment Report for Uganda, 2000/2001 page 84

⁸ See <u>John C. Sheerin: The Greenhouse Effect and Developing Countries (1992)</u>, Economic Development Institute of the World Bank, FDI Working Papers, pages 2 & 3

⁹ See Environmental Protection Agency: "global Warming Site": Emissions – Individual, published on www.epa.gov/globalwarming/emissions/individua/index.html

It should be noted that there is willingness by the developed countries to provide funding to developing countries to facilitate the implementation of climate change activities. For instance, between July 2000 and June 2001, total project financing for climate change activities through the GEF exceeded US \$ 817million.

Under the framework of both the UNFCCC and the Kyoto Protocol, the role of developing countries like Uganda in the reduction of greenhouse gas is provided for even though developing countries are responsible for only minimal levels of greenhouse gases concentrations.

Article 12 of the Kyoto Protocol to the UNFCCC provides for the concept of Clean Development Mechanism (CDM). CDM is a development and environment mechanism which aims to promote both sustainable development and environment protection. Under CDM, Annex 1 parties¹⁰ (developed/industrialized countries) are allowed to implement projects that reduce greenhouse gas emissions in the territories of Non-Annex I parties¹¹ (developing/less industrialized countries). The "certified emission reductions" generated by projects initiated on the territories of Non-Annex I parties can then be used by Annex I parties to help meet their emissions reduction targets while such projects will also assist Non-Annex I parties to achieve sustainable development and contribute to the attainment of the objectives of UNFCCC. It is not clear whether under the present legal, regulatory, policy and institutional framework, Uganda can fully derive benefits resulting from investment in CDM projects. It is important to review laws critical to climate change, such as: - the National Environment Act, Cap 153, the National Forestry and Tree Planting Act, 2003, The Petroleum Act (Cap. 97), The Mining Act, 2003, the Petroleum Supply Bill, 2003. The Investment Code, 1991, Income Tax Ac, 1997, The Electricity Act, 1999, Water Act Cap 152, Petroleum (Exploration and Production) Act, 1985, The National Environment (Waste

¹⁰ Under the UNFCCC, Annex I Countries include, Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Czechoslovakia, Denmark, European Economic Community (now European Union), Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Lativia, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland and United State of America.

¹¹ All countries that are not included in Annex I as set out above are categorized as Non-Annex I parties.

Management) Regulations, 1999, The Water Resources Regulations, 1998 and the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2000 and determine whether they sufficiently take into account climate change concerns.¹²

1.2. Statement of the Problem

Considering that developing / least developed countries like Uganda are preoccupied with more urgent development and environment needs as opposed to climate change, the exact role and input of such countries with respect to the implementation of the UNFCCC and its Kyoto Protocol remains a puzzle. Although it has been argued that, the CDM concept under the Kyoto Protocol presents numerous development opportunities to countries like Uganda, it remains unclear as to whether or not the CDM concept will prove beneficial to countries like Uganda. At the center of it all, it remains imperative to examine the underlying question as to whether Uganda should have got involved in climate change issues at all bearing in mind its development needs and if yes, the extent to which it should get involved. Implementation of the UNFCCC would necessarily require Uganda to forego some of its current development needs. Consequently, a further unanswered question is whether Uganda can in fact forego some of its development needs for the sake of implementation of the UNFCCC and its Kyoto Protocol.

1.3. Objectives of the Study

The main objective of the study is to scrutinize and analyze the relevance of the UNFCCC and its Kyoto Protocol to Uganda with specific emphasis on the Clean Development Mechanism (CDM). The following four specific objectives of the study have been identified: -

(a) To scrutinize and analyze developments leading to the adoption of the UNFCCC in relation to the role of developing / least developed countries like Uganda.

(b) To evaluate the existing legal, regulatory, policy and institutional framework in Uganda in relation to the international legal obligations incumbent upon Uganda to implement both the UNFCCC and its Kyoto Protocol and to assess the adequacy of such

¹² The petroleum supply Act, 2003 is a new law that was passed by Parliament in mid- May, 2003.

a legal, regulatory, policy and institutional framework with particular reference to the CDM concept.

(a) To evaluate the limitations of implementation of Clean Development Mechanism (CDM) provided for under the Kyoto Protocol to the UNFCCC in Uganda vis-à-vis the role of the developed world in overcoming such limitations.

(b) To give proposals and recommendations for a more effective legal, regulatory, policy and institutional framework for the implementation of the Clean Development Mechanism (CDM) provided for under the Kyoto Protocol to the UNFCCC in Uganda.

1.4. Research Questions

The main research question for the study is whether the concept of Clean Development Mechanism provided for under the Kyoto Protocol to the UNFCCC is relevant to Uganda. The following four specific research questions for the study have been identified and they include the following: -

(a) What role did developing / least developed countries such as Uganda play in developments leading to the formulation and adoption of the UNFCCC and its Kyoto Protocol?

(b) What development benefits does Uganda stand to gain from the implementation of the UNFCCC and its Kyoto Protocol particularly with regard to CDM project investment activities?

(c) What are the existing and the anticipated limitations in Uganda in relation to the implementation of the Clean Development Mechanism provided for under the Kyoto Protocol to the UNFCCC?

(d) In what way should the legal, regulatory, policy and institutional framework be critical to the implementation of the CDM in Uganda be reviewed, revised, amended or what kind of laws require introduction to facilitate the implementation of the CDM provided for under the Kyoto Protocol to the UNFCCC?

1.5 Significance the Study

The study is important to developing country like Uganda because the available scientific data is to the effect that the anticipated global climate change will have a more pronounced effect on developing economies such as that of Uganda as compared to the developed economies. Consequently, it is important that Uganda makes its contribution

towards reduction of greenhouse gas concentrations in the atmosphere and one way of doing this, is to undertake studies aimed at the evaluation of the importance / relevance of mechanisms such as the CDM provided for under the Kyoto Protocol to the UNFCCC.

Specifically, the UNFCCC and the Kyoto Protocol envisage investment in CDM projects by developed / industrialized countries in developing countries like Uganda. While such CDM projects are primarily aimed at attainment of reduction of greenhouse gas concentrations as provided for by the UNFCCC and its Kyoto Protocol, it is important to note that there are anticipated ancillary economic benefits that Uganda could gain from such CDM project investments. Accordingly, it is imperative that Uganda explores means of attracting such anticipated development gains. The study will therefore, assist policy makers and other stakeholders in the field of climate change in the design of the desired enabling environment.

1.6 Literature Review

The debate on the anticipated global climate change was first thrown into limelight in 1979. Since then a number of publications and writings have been written. Most of these publications are general in nature and those that are specific, relate to other countries other than Uganda. With the conclusion of the Kyoto Protocol in 1997, under which the CDM is provided, a number of scholars have released various publications on the CDM but considering that the CDM is still a relatively new concept, not all the legal, regulatory, policy and institutional issues, especially as they relate to the specific circumstances of Uganda, have been addressed by such scholarly publications. This study undertakes a comprehensive review of this literature and evaluated its relevance to the Ugandan climate change situation.

The First Assessment Report of IPCC¹³ (1990) affirmed the underlying scientific basis of climate change. The Report contains elaborate scientific details on climate change including the historic, current and future contributing factors to climate change. With

See Intergovernmental Panel on Climate Change (IPCC) / World Meteorological Organization and the United Nations Environment Programme; Climate Change: The 1990 and 1992 IPCC Assessment, June, 1992; pages 63 to 84.

regard to the contribution of forests to climate change, the Report notes that in the early part of the 20th century, deforestation mainly occurred in the temperate regions (which are mainly located in the developed world) as opposed to the tropics (which are mainly located in the territories of the developing countries). The Report further notes that more recently, deforestation has been concentrated in the tropics. The observation of the Report is that deforestation is a major contributory factor to climate change. The Report confirms the view that the developed world is responsible for the current levels of greenhouse concentrations in the atmosphere due to, firstly, the depletion of temperate forests in the early part of the 20th century, and secondly the burning of fossil fuels in mid 20th century due to the industrial revolution in the developed world. The above Report is relevant to the study because it gives a scientific basis for the debate on climate change and provides a useful insight with regard to the application of the developed and developing countries to the climate change problem is clearly distinguishable.

The Third Assessment Report of IPCC (2001)¹⁴ which builds on previous IPCC assessments (such as the 1990 IPCC First Report and the 1995 IPCC Second Assessment Report) re-examines key findings of earlier assessment and emphasizes new information and implications from more recent studies. The Report examines climate change in the context of sustainable development and equity. The Report re-affirms the view that agriculture and food security in the tropics (Uganda is located in the tropics) is vulnerable to climate change. Energy and industry are the other sectors that are expected to be directly affected by climate change. Recognizing that vulnerability to climate change differs substantially across regions and across populations within regions, the Report singles out Africa as particularly vulnerable to climate change. The water

^{14.}See Intergovernmental Panel on Climate Change; Third Assessment Report, 2001 Working Group 1; Climate Change 2001. The Scientific Basis; Working Group II; Climate Change 2001: Impacts, Adaptation, and Vulnerability, 2001 at pages 21, 22, 32, 36, 44, 66 and 70; Working Group III; Climate Change 2001: Mitigation; also See Intergovernmental Panel on Climate Change; Second Assessment Report 1995; Working Group I: The Science of Climate Change; Working Group II: Climate, Impacts and Adaptation; Working Group III: Socio-Economic Aspects of Climate Change, 1995 – published on http://www.ipcc.ch/pub/SYRtechsum.pdf

resources, food production and human health sectors are identified as priority areas. The Report argues that most countries in Africa are particularly vulnerable to climate change because of limited adaptive capacity as a result of widespread poverty, recurrent droughts, inequitable land distribution, and dependence on rainfall agriculture. In contrast, countries in Europe for instance, are better prepared to deal with climate change due to the high adaptation potential because of strongly economic conditions, stable populations, and well-developed political, institutional and technological support system. The above Report is crucial to the study because it contains an updated and most recent account of major developments in climate change. Nevertheless, the Report is generalized and discusses climate change at a global level. This study has confined itself to Uganda while testing the applicability of the climate change principles that have been developed at a global level.

The most recent climate change publication on Uganda is Uganda's Initial National Communication to the UNFCCC¹⁵. The Report gives a comprehensive review of the climate change situation in Uganda. Notably, the Report highlights measures and policies that the Uganda Government is pursuing to address the climate change problem. Measures so far undertaken, include, capacity development; strengthening climate change problem. Measures so far undertaken, include, capacity development; strengthening climate change monitoring; and development of an adaptation action plan. The Report also notes that efforts are in advanced stages aimed at the establishment of the National Climate Change Secretariat, whose function, amongst others will be, the negotiation of purchase agreements for CDM projects; checking and verifying CDM baseline calculations; and developing operational guidelines for the approval of projects; and maintaining a register of CDM projects and keeping track of Certified Emission Reduction Units (CERs). While the above Report gives a useful insight into the policies and measures that the Ugandan Government has taken, or is taking, to address the climate change problem, it does not provide a critique of those measures / policies, and is generally in the form of an outline.

¹⁵ See Ministry of Water, Lands, and Environment; <u>Uganda's Initial National Communication to the</u> <u>United Nations Framework Convention on Climate Change</u>, October, 2002, pages 51 to 58.

Another comprehensive research writing on the climate change situation in Uganda is the Report on Sources and Sinks of Greenhouse Gases in Uganda by the by the Department of Meteorology (Meteorology (1994)¹⁶. The Report contains a detailed and elaborate examination of the sources and sinks of greenhouse gases in Uganda, which are stated to include: - energy combustion activities, energy production, transmission, storage and distribution; industrial processes, agriculture, land use change, forestry, and wastes. The Report further makes a number of recommendations to contain the climate change situation, among which is the enhancement of the legal, regulatory and policy framework. While the above Report is a useful source of scientific information on the climate change situation in Uganda, it merely contains amongst others, remarks and recommendations of a general nature on the need to put in place an enabling legal, regulatory and policy framework to address climate change concerns and does not contain any specific details on the modalities of such a framework.

The State of Environment Report for Uganda (1996)¹⁷ gives progress on the action taken by Uganda in relation to climate, which is stated to include the signing and ratification of the UNFCCC, completion of the GGI, commencement of Vulnerability Assessment Studies, and commencement of Activities Implemented Jointly (AIJ). The State of Environment Report for Uganda (1998)¹⁸ notes that as Uganda's economy is heavily dependent on agriculture, the anticipated global climate change is likely to significantly affect its development. The Report also reviews further progress made on the implementation of the UNFCCC, which is stated to include, establishment of an Enabling Activity project to assist Uganda in the preparation of the National Communication to the Conference of Parties (COP) and capacity building in the training of manpower in meteorology studies. The State of the Environment Report for Uganda

¹⁶ See Ministry of Natural Resources of the Republic of Uganda – Department of Meteorology, <u>Final</u> <u>Report on Sources and Sinks of Greenhouse in Uganda</u>, A UNEP / GEF Sponsored Project, August, 1994 pages 108 – 113. Other Recommendations given relate to Energy, Industry and Wastes; Agriculture and Savanna Burning and Land – Use Change and Forestry.

¹⁷ See National Environment Management Authority; State of Environment Report for Uganda, 1996 page 230.

¹⁸ See National Environment Management Authority; State of Environment Report for Uganda, 1998 pages 165 – 167.

(2000 / 2001)¹⁹ notes that Uganda has incorporated environmental issues in both the PEAP and PMA but the said plans do not take into account the likely impacts of climate change. Apart from a general outline of the progress made with regard to the implementation of the UNFCCC, the above Reports do not give any comprehensive assessment of the relevance of the UNFCCC and its Kyoto Protocol to Uganda.

Richard S. Odingo²⁰ examines the potential of investment in CDM Projects in African countries and whether such investments will necessarily bring about sustainable development. His study also focuses on, amongst other issues, financing of CDM projects; private sector participation in the CDM; project design and governance for CDM in Africa; and institutional preparations for initiating CDM projects in African countries. The above study is very useful to this study in two important respects. Firstly, it specifically discusses the suitable development perspective of the CDM, and secondly, it focuses on the African Countries. This research wok has therefore; found the above scholarly work, very instructive, in as far as the applicability of the CDM concept discussed in it, to the Ugandan climate change situation is concerned.

Richard Stewart²¹ discusses the structure of the CDM investment functions, project eligibility and approval, operational elements of the CDM, investment incentives and opportunities, and organization of the CDM and its functions. The above author's discussion of the above issues or concepts is general and is not specific on any given country. The researcher has however; found the above author's work very useful while discussing the applicability of the various CDM issues / concepts to the climate change situation in Uganda.

¹⁹ See National Environment Management Authority, State of the Environment Report for Uganda, 2000/2001 at pages 83 - 84

²⁰ See Richard S. Odingo; <u>The Clean Development Mechanism in Africa: A Framework for the</u> <u>Design of Sustainable Development Projects</u>; Climate Network Africa (CAN), First Edition, December, 2001, Nairobi, Kenya – See generally the whole book

²¹ See Richard Steward (ed); <u>The Clean Development Mechanism: Building International Public –</u> <u>Private Partnerships Under the Kyoto Protocol, Technical, Financial and Institutional Issues;</u> <u>prepared with the support of the United Nations Conference on Trade and Development</u> (UNCTAD), the United Nations Development Programme (UNDP), United Nations Environment <u>Programme (UNEP), and United Nations Industrial Development Organization (UNIDO) United</u> <u>Nations, New York and Geneva, 2000.</u>

Nairobi Declaration on Climate Change²² makes wide-ranging policy The recommendations regarding climate change, specifically in relation to research and training, technological innovation, public awareness and participation, institutional reforms, and involvement of the developed world and the private sector. In relation to institutional reform, the Nairobi Declaration observes that there is an urgent need to undertake studies on the ability of current institutions to deal with climate change and further notes that such a review should be extended to the legal systems of the various countries to enhance the effective application of the recommendations contained in the Declaration. It is important to note that the Nairobi Declaration is a product of a conference that was convened to generally discuss the position of all African countries in relation to climate change concerns, and consequently, the declaration is a general exposition touching on all African countries. Apart from the generality of the recommendations of the Nairobi declaration, no attempt is made to specifically recommend a model of a legal and regulatory framework applicable to any given African country and critical to the attainment of the objectives of the UNFCCC. In any case, the Nairobi Conference was held in 1990 before the negotiation of the UNFCCC in 1992 as well as the Kyoto protocol much later in 1997 and so, does not address the recent major developments in the field of climate change.

UNEP's Information Unit on Climate Change²³ examines the various international legal obligations of states in relation to climate change. The report observes that before 1992 international law did not provide a consistent approach to climate change and it notes that a number of treaties were in force by 1992 such as the Geneva Convention on Long-Range Transboundary Air Pollution and the Montreal Protocol on substances that deplete the Ozone Layer did not directly address the causes and effects of climate change. Customary international law did not address climate change either. The report further notes that while with regards to climate change, the legal problem is that no State can claim the atmosphere belong to its territory and consequently that the international legal obligation to prevent damage to other territories does not apply to atmospheric

²² See The Nairobi Declaration on Climate Change; <u>International Conference on Global Warming and</u> <u>Climate Change; African Perspective 2 – 4 May 1990, pages 13, 19 and 20</u>

²³ See United Nations Environment Programme, Information Unit on Climate Change (IUCC): "International Law and Climate Change" Fact Sheet 202.

discharges, the atmosphere has the legal status of a "common concern of human kind" and accordingly that all states have a legal interest and duty to protect it from serious harm. It should be noted that the observations made by the Report relate only to the obligations of states under international law, and although it is admitted that this is important to the study since the question in issue is partly the implementation of an international climate change treaty by a contracting party, the Report makes only brief and general observations and does not exhaustively deal with the issue of an enabling legal, regulatory, policy and institutional framework for the specific implementation of the UNFCCC and its Kyoto protocol.

John Ntambirweki²⁴ makes useful contributions to the study by highlighting the question of law to the effect that Uganda is under an international legal obligation to honour international treaties to which it is a party. Nevertheless, observations made by the above author were in context of the conversion on Biological Diversity (1992) and therefore, do not directly address issues set out under the Kyoto protocol. Consequently, his work does not effectively address the main objectives of the research, which is an evaluation of the relevance of the Clean Development Mechanisms (CDM) provided for under the Kyoto protocol to the UNFCCC to Uganda.

Albert Mumma²⁵ argues that African countries have failed to articulate a common position in the course of climate change negotiations. The author specifically points out a paper entitled "Africa's Common Position on the Clean Development Mechanism" which was submitted on behalf of the African continent to the 4th session of the Conference of Parties (COP) by Uganda. The above author points out various inconsistencies and contradictions in the said paper and concludes that Africa miserably failed to articulate a clear and concise position. One of the contradictions in the said paper pointed out by the above author is the observation by the paper that the CDM should be regulated by market forces and yet at the same time the paper argues that CDM projects should be allocated to an equitable regional / sub-regional basis. The

²⁴ See <u>John Ntambirweki, Evaluation of the Implications of Ratifying the Convention on Biological</u> <u>Diversity in Uganda. Consultancy Report, Food and Agriculture Organization (FAO), May, 1996</u> (Dar es Salaam) pages 5 and 6.

²⁵ See Albert Mumma; <u>"The Poverty of Africa's Position at the Climate Change Convention</u> <u>Negotiations" (undated); published at: http://lion.meteo.go.ke/cna.</u>

inability by the African continent to articulate a position at a global level (which is shared by this study) clearly demonstrates that there is an agent need to undertake research into the field of climate change in order to assist policy makers to present more forceful positions. The researcher's efforts are partly, a response to that need.

John C. Sheerin (1992)²⁶ discusses carbon taxation as a measure to reduce greenhouse gas emission. Carbon taxation applies through the imposition of taxes on products that are proven carbon or green house gas emitters thereby reducing their consumption or use and consequently resulting in the reduction of carbon / greenhouse emission. The author also points out that in the transportation sector, motor vehicles have been proven to contribute significantly to greenhouse emissions and yet there is a high potential for motor vehicle technical and efficiency improvements, for instance the development of none- fossil electricity for electric or hydrogen-fueled vehicles. Likewise, in the electricity sector, the author notes that in the generation of electricity, fuel substitution from coal to natural gas could achieve approximately 50% improvement in the levels of carbon dioxide emissions. Implementation of the above measures would necessarily require an effective legal, regulatory, institutional, and policy framework. For instance, tax laws may require to be adjusted to target products that have a high potential for greenhouse emissions. Likewise, in the electricity generation sector, electricity laws may be adjusted to take into account concerns relating to greenhouse gas emissions, more especially so in a developing country like Uganda where the potential for electricity generation is high²⁷. Therefore, the above study is important because it gives proposals on how the legal regime can be used for the attainment of UNFCCC's objectives. Such proposals have been subjected to further scrutiny and analysis with regard to their applicability in Uganda by this study.

David M. Ackerman (2001)²⁸ gives a useful insight into the position of the USA with regard to the signature and ratification of the Kyoto Protocol. He clarifies that the US has merely signed the Kyoto Protocol but declined to ratify it. He however, stresses that

²⁶ See John C. Sheerin; op cit at pages 8, 9, and 10.

²⁷ Some of the proposed electricity generation projects in Uganda currently include, Bujagali Project and West Nile Hydro-Electric Power Project.

²⁸ See David M. Ackerman, <u>"Global Climate Change; Selected Legal Question about the Kyoto</u> <u>Protocol";</u> CRS Report for Congress, March 29, 2001.

by his act alone (i.e. the act of signature) the U.S. assumes an international legal obligation to refrain from actions that would undermine the Kyoto Protocol's object and purpose. The relevance of the US's position on the Kyoto Protocol lies in the fact that the US is the world's largest greenhouse gas emitter and accordingly it becomes important to monitor the stance taken by the US and other major greenhouse gas emitters in the World, on climate change initiatives²⁹. In the case of the US, in view of the fact that it has recently indicated that it does not intend to pursue ratification of Kyoto Protocol, it becomes relevant to answer the crucial question as to whether developing countries like Uganda should, in such circumstances be taking any action to curb and contain greenhouse gas emissions when in fact one of the World's largest greenhouse gas emisters has declined to take action.

The Intergovernmental Panel on Climate Change (IPCC)³⁰ highlights the impacts of climate change that are likely to be experienced by African countries, and among these is the significant increase in the sea level that will affect the East African Coast. The Report further notes that the above, coupled with the rapidly expanding cities and their populations will have tremendous socio-economic stresses. Although, the above Report does not specifically mention Uganda, it is reasonable to assume that the same anticipated climate change impacts at the East African Coast will apply to inland water lakes such as Lake Victoria. The above Report therefore helps to justify the urgency to take action to contain the anticipated global climate change and one way of doing this, is to conduct research studies on climate change issues.

The Climate Change Secretariat³¹ provides a useful insight into measures that should be undertaken by developing countries to contain climate change impacts. These are stated to include, data collection, research and monitoring of climate change impacts, assessment of vulnerability and adaptation options, capacity building, improving early

²⁹ See Environment Protection Agency; op cit

³⁰ See Intergovernmental Panel on Climate Change; The Regional Impacts of Climate Change – Africa; published on <u>http://www.gride.no/climate/ipcc/regional</u>.
³¹ See Climate Change Secretorist. The secretorist is a secretorist.

³¹ See Climate Change Secretariat; <u>Issues in the Negotiating Process – Implementation of Article 4.8</u> and 4.9 of the Convention and Matters Relating to Article 3, 14 of the Kyoto Protocol: <u>Impacts of</u> <u>Climate Change and Response Measures and Developing Countries</u>: Published on <u>http://unfccc.int/issues/art48/49.html</u>

warning systems for rapid response to extreme weather events, development and transfer of more climate friendly technologies, including non-energy uses of fossil fuels, advanced fuel technologies and carbon capture / storage, and the expansion of climate – friendly energy sources (e.g. natural gas and renewables). The above Report does not provide specific details with regard to the implementation of the above measures. This study has explored various models through which the above measures can be implemented.

Derrick W.Brinkerhiff and **Benjamin Kamugasha** (1998)³² in their review of the National Environment Action Plan (NEAP) process in Uganda note that the next steps to be taken in Uganda's NEAP process is to review sectoral legislation to identify current provisions on which the NEAP implementation modalities would be based, to uncover legal and regulatory gaps and to adopt sectoral laws to fit the provisions of the National Environment Statute (Act). The above observations support the justification for the study. It should be noted that the above authors give general remarks on the need for sectoral legal and regulatory framework without giving specifics of any particular sector. The study focuses its attention on the climate change sector in Uganda.

The Uganda Forestry Policy (2001)³³ acknowledges that the current legal and regulatory framework is outdated and needs review and revision in order to enhance the capacity of Uganda to honour its commitments under international agreements. The Policy Statement notes that there is need to replace the Forests Act and also review among others, the National Environment Statute (1995), the Investment Code (1991), the Wildlife Statute (1996) and the Land Act (1998) and that such a review should be undertaken in light of Uganda's commitments under international agreements, conventions and treaties. Among the international agreements mentioned by the Policy Statement is the UNFCCC. The Policy does not give any specific details on how the above review should be undertaken.

³² See Derick W. Brinkerhoff and Benjamin Kamugasha; <u>Uganda and the National Environment</u> <u>Action Plan: Focusing on Implementation, January 1998 page 37</u>

³³ See Ministry of Water, Lands and Environment of the Republic of Uganda; The Uganda Forestry Policy (2001) pages 17, and 28

Eldard M. Tukahirwa $(1992)^{34}$ notes that Uganda's forests have undergone fast depletion since 1900. He observes that in 1900 forest coverage was estimated at 31,000km nation-wide as compared to 1986 when forests accounted for a mere 6,000km out of Uganda's total area. Considering that effective forestry management practice is critical to the attainment of the objectives of the UNFCCC and its Kyoto Protocol, and that afforestation and reforestation initiatives are potential CDM projects, it is imperative that research studies be undertaken on Uganda's forestry sector in particular with respect to human – induced afforestation and reforestation programmes envisaged by the UNFCCC and its Kyoto Protocol.

Raul O'Ryans et. al (2002)³⁵ addresses changes in transportation, energy use and greenhouse emissions and other environmental impacts resulting from economic growth and transportation choice. The authors note the transportation choices have a bearing on greenhouse gas emissions. The authors also observe that developing countries are likely to have potentially large climate benefits resulting from the sale of emission credits under the CDM project investments. The view of the study is that further research is required to ascertain the exact benefits that might accrue to Uganda as a result of the implementation of the CDM projects.

A Report on Climate Change Measures in the Senate Energy Policy Act (2002)³⁶ observes that the proposed Energy Policy Bill would have an indirect effect on US emissions of greenhouse gases. The Report observes that sections of the Bill would promote renewable energy, fuel ceils and net electricity metering; give tax benefits for the purchase of energy efficient vehicles; promote energy efficiency in federal publicly subsidized and private buildings; authorize energy conservation standards for commercial products and authorize voluntary energy conservation programs. The above

³⁴ See Eldad M. Tukahirwa; <u>Environmental and Natural Resource Management Policy and Law:</u> <u>Issues and Options (1992)</u> pages 2 and 15.

³³ Raul O'Ryans, Daniel Sperling et. al; <u>Transportation in Developing Countries: Greenhouse Gas</u> <u>Scenarios for Chile (August 2002)</u> page iv, published on http://www.pewclimate.org/transportation - chile.pdf

³⁶ See Pew Center on Global Climate Change: <u>"Climate Change Measures in the Senate Energy Policy</u> <u>Act</u>" (September 2002), published at <u>http://wwwpewelimate.org/policy/senate</u> - energy

Report assists the study by highlighting measures being implemented in other countries to address climate change concerns.

Paige Brown³⁷ discussed the role of forests and land use change in developing countries under the Kyoto Protocol. The author observes that the CDM provides a significant opportunity in the Kyoto Protocol to identify and finance lower – emission development paths in developing countries and particularly notes that since the CDM is new, having become operational in the year 2000, efforts geared at implementing the same should take priority concern. While the above author gives a useful insight regarding the operational context of the CDM, it is important to note that this is done in general reference to developing countries. The study has amongst others, explored the operational context of the CDM with particular reference to Uganda's legal, regulatory, institutional and policy framework's ability to facilitate the implementation of CDM project investments.

Ben Twinomugisha³⁸ in his LLM Dissertation discusses the development of the law relating to the protection of the ozone layer in relation to the position of developing countries. The author briefly discusses measures that governments can put in place to facilitate the implementation of the international legal regime for the protection of the ozone layer. The above author's views are made in the context of an existing international agreement in relation to its implementation by the contracting states. This is relevant to this study since it also discusses the implementation of international agreements, namely the UNFCCC and the Kyoto Protocol in Uganda. Nevertheless, the remarks by the above author are made only in passing and do not form the main thematic avenues of his study, and in addition, the author discusses different international agreements altogether, namely, those relating to the protection of the ozone layer.

³⁷ See Paige Brown; Climate, <u>Biodiversity and Forests: Issues and Opportunities Emerging from the</u> <u>Kyoto Protocol, World Resource Institute and Forest Frontiers Initiative in Collaboration with</u> <u>IUCN</u> (undated), pages 19 to 23

³⁸ See Ben Kiromba Twinomugisha; <u>The Development of the Law Relating to the Protection of the</u> <u>Ozone Layer with Particular Reference to the Position of Developing Countries, LL.M Dissertation</u>, June 1995 at pages 134 - 139

1.7 Scope of the Study

The study covers the period from the inception of the debate on climate change (1979); the study actually traces scientific concerns on climate change to about 1873. Particular emphasis has been laid on the discussion of the relevance of the CDM provided for under the Kyoto Protocol to the UNFCCC to Uganda.

1.8 Research Methodology

1.8.1 Library and Internet Research

In conducting the study, reliance has mainly been placed on library research. Research has been carried out at National Environment Management Authority (NEMA) library, which contains detailed information on the subject, the British Council library, Makerere University library, the Department of Meteorology library, United States Information Service (USIS) library, IUCN library and libraries that belong to the various environmental NGOs. Internet research also has been carried out.

1.8.2 Research Design

The study has employed qualitative research methods. This is because the major focus of the study has been the evaluation of the relevance of the CDM provided for under the Kyoto Protocol to the UNFCCC to Uganda and consequently, it was felt that the use of qualitative research methods would best achieve the objectives of the study.

1.8.3 Obstacles

Given the fact that climate change and CDM initiatives are still in their infant stages, and still shrouded in scientific mystery, serious obstacles have been encountered with regard to the obtaining the relevant information. In addition, information from some of the libraries mentioned above is outdated and the libraries are not ideally stocked. The above problem has been tackled supplementing the library research with internet originated materials.

1.9 Chapter Synopsis

1.9.1 Chapter One

This chapter has the Introduction, Background to the Study, Statement of the Problem, Objectives of the study, Research Questions, Significance of the study, Literature Review, Scope of the Study and Methodology.

1.9.2 Chapter Two

This chapter examines development leading to the adoption of the UNFCCC. The chapter traces scientific climate change concerns from the work of the International Meteorology Organization (IMO) in 1873 up to 1997 when the Kyoto Protocol was adopted. Particular emphasis has been placed on the role or no role of the developing countries in the climate change in the period preceding the adoption of the UNFCCC and the Kyoto Protocol.

1.9.3 Chapter Three

This chapter discusses the international issues arising out of the concept of the CDM. The view that CDM will enable developing countries to tap sustainable development benefits as a result of the implementation of CDM project investments has been given particular attention. In addition the role of developed countries in the promotion of the participation of developing countries in CDM has also been discussed. This chapter has also considered the compromise of the sovereignty of Uganda as a result of its involvement in CDM.

1.9.4 Chapter Four

This reviews and evaluates the existing legal, regulatory, policy and institutional framework in Uganda relation to the CDM and assess the adequacy of such framework in relation to its suitability to the attainment of the objectives of the UNFCCC and its Kyoto Protocol. Emphasis has been placed on modalities for the implementation of CDM projects against the background of the discussion of the relevance of the UNFCCC and its Kyoto Protocol to Uganda.

1.9.5 Chapter Five

This chapter gives proposals and recommendations for a more effective legal, regulatory, policy and institutional framework for the implementation of the CDM provided for under Kyoto Protocol to the UNFCCC in Uganda.

CHAPTER TWO

HISTORY OF CLIMATE CHANGE NEGOTIATIONS

2.1 Introduction

Although the debate on climate change at an international level gained momentum in or about 1979, concerns regarding climate change can be traced to about a century before 1979. The International Meteorological Organization (IMO) had been formed way back in 1873 to undertake research and gather information on weather and climate. External factors not necessarily directly linked to climate change such as the industrial revolution of the 19th and 20th centuries are understood by physical scientists to have had a significant impact the course of the climate change debate. Within the industrial revolution, the computer revolution, the international research revolution, and finally what has been termed as "the influence of human activities on climate revolution".³⁹ The above revolutions had a fundamental impact on the direction of climate change debate.

With the holding of the First World Climate Conference in 1979, countries all over the world recognized the need for a concerted global action to tackle the climate change problem. The Second World Conference on Climate Change was held in November 1990 in Geneva, Switzerland and both its Ministerial Declaration and Conference Statement called for a global treaty to address climate change. These efforts led to the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and later the Kyoto Protocol to the UNFCCC in 1997.

Before the adoption of the UNFCCC, key international efforts aimed at addressing climate change (though some were generally aimed at the environment) included the Stockholm Conference on Environment and Development held in 1972, Our Common Future Report of world Commission on Environment and Development to the UN in September 1987, ("the Brundtland Report"), and the work of the Intergovernmental

³⁹ See J. Jager and H.L Ferguson; <u>Climate Change: Science, Impacts and Policy; Proceedings of the Second World Climate Conference; World Meteorological Organization,</u> Cambridge University Press, 1999, see specifically the presentation of James P. Bruce; <u>"The World Climate Programme: Achievement and Challenges</u>" at page 149
Panel on Climate Change (IPCC) established in 1988 by both the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

2.2 Tracing the Roots of the Climate Change Debate

The debate on climate change can be traced to the work of the International Meteorological Organization (IMO) in 1873. A major preoccupation of the IMO was the measurement and understanding of climate. Thus, the initial focus of the IMO and later the World Meteorological Organization (WMO) was the collection of observation, description of the world's climate, the world's climate means and extremes, temperature, wind, relative humidity, sunshine duration, and atmospheric pressure. However, with time, the mission and focus of the IMO and the WMO was re-defined by the impact of the industrial revolution of the 19th and 20th centuries. The various sub-revolutions of the industrial revolution included the observational revolution; the computer revolution; the international research revolution; and "the influence of human activities revolution."40 The above sub-revolutions are discussed

2.2.1 The Observational Revolution

The observational revolution was characterized by the establishment of the World Weather Watch. The World Weather Watch had an extensive satellite and ground-based observing systems and rapid worldwide communications. It also had a network of Computerized World and Regional Meteorological Centers that had the ability to quickly compile regional and global climatic statistics and analyses as well as operational weather fore-casting functions.⁴¹ Another important aspect of the observational revolution was the establishment of programmes to measure the chemical changes in the global atmosphere in the 1960's.

2.2.2 The Computer Revolution

The significance of the computer revolution lies in the ability by physical scientists to, mathematically simulate the atmosphere and obtain daily weather predictions and

 ⁴⁰ See J. Jager and H.L Ferguson; 1999 Ibid
 ⁴¹ As above.

projections of future climates. This is important since it helped to explore the scientific mystery about the exact impact of climate change.⁴²

2.2.3 The Research Revolution

This revolution arose out of global efforts to assemble international research resources in a programme known as the Global Atmospheric Research Program (GARP). The mission of the GARP was to mobilize support from both the operational meteorological services and academic scientists. The concept of the GARP began to be developed after the UN General Assembly Resolution on Peaceful Uses of Outer Space. The main objective of the GARP was to improve understanding of the dynamics of the global atmosphere and to extend the period for which useful weather forecasts would be issued. The GARP was carried out over a 15 year period from 1967 to 1982. It comprised three field projects. Firstly, GARP Atlantic Tropical Experiment 1974 (GATE). GATE involved 70 countries, 40 research vessels, special observation aircraft, surface based observations and the use of satellite imagery. Secondly, was the Global Weather Experiment, 1979 (GWE). GWE involved an intensive study and measurement of the whole global atmosphere over a full year. Thirdly, was the Alpine Experiment, 1982 (ALPEX). ALPEX was designed to measure and better understand the role of mountains in wind systems. A significant outcome of the above projects was climate data that enabled scientists to make weather predictions up to seven days in advance with significant skill.43

2.2.4 The "Influence of Human Activities on Climate" Revolution

Initially, the general view was that human activities do not affect global climate. Following the industrial revolution and the resultant rising level of carbon dioxide concentrations in the atmosphere, global attention became focused on the concept that human actions were indeed bringing about a major change in the atmosphere and in climate, and hence the "Influence of Human Activities on Climate" revolution.⁴⁴

⁴² See J. Jager and H.L Ferguson; 1999 Ibid

⁴³ As above

⁴⁴ As above

2.2.5 Significance of the Revolutions

The significance of the above revolutions lies in the impact on the direction and trend of the climate change debate. The major outcome of the revolutions is two- fold. Firstly, the revolutions resulted in the ability of scientists to better understand and appreciate the climate system with the help of the use of modern scientific tools of analysis. Secondly, it became well understood that there was a connection between human activities and the climate system than had been earlier understood.

2.3. The UN Stockholm Conference on Human Environment, 1972

The UN Stockholm Conference on the Human Environment was held to generally address all the issues relating to the environment. Industrialized countries were concerned that natural resources were being utilized in a manner that could lead to their exhaustion and accordingly that there was need o take preventive measures to conserve the environment. Although the conference was not specifically aimed at climate change, the concern expressed at the conference of the need to conserve the environment obviously included tackling the climate change problem as well. It is noted that the Stockholm Conference laid the foundation for the debate on the need to conserve the environment to ensure survival of humankind on the earth's planet. Climate change is one of those issues that the international community took particular interest in after the appeal by the report of the Stockholm Conference.⁴⁵

2.4.0 Beginning of the International Debate on Climate Change: The First World Climate Conference, 1979

The First World Climate Conference (FWCC) was held in 1979 in the midst of the industrial revolution and its sub-revolutions. It was the first ever meeting of world countries to discuss the climate change problem. It thus, reflected the view that climate change was a global problem that required the concerted efforts of the entire world. The result of this conference was a conference statement that called on all nations to work together to understand climate and climate change. It is important to note that the above conference was held at a time when there was limited understanding of the effect of

⁴⁵ See the Report of the (United Nations Stockholm Conference on the Human Environment), United Nations, New York, 1973 Document: A conf. 48/14 Rev; 1

greenhouse gases on climate change and accordingly, the conference statement was cautious about the link between greenhouse gases and climate change.⁴⁶

2.4.1 WMO Decisions in the Aftermath of the First World Climate Conference

In June, 1979 after the FWCC, the congress of WMO launched the World Climate Programme (WCP). The WCP had four main components.⁴⁷ They included the World Climate Data Programme, (WCDP) the World Climate Applications Programme, (WCAP) the World Climate Impact Studies Programme (WCTP) and the World Climate Research Programme (WCRP). The WCDP helped developing countries in the management and the use of climatic data. The WCDP also published monthly analyses of climate monitoring data from around the world. The WCAP provided countries with climate data to use in the planning of activities including food production, water resource management, energy systems and urban development.

2.5. The Brundtland World Commission on Environment and Development — Our Common Future Report, 1987

The Brundtland Commission was created following a General Assembly Resolution No. 38/161 adopted at the 38th session of the United Nations at the end of 1983. The resolution called upon the Secretary General to appoint the chairman and vice chairman of the Commission and the appointees were in turn directed to appoint the remaining members. Under the terms of the UN resolution, half of the members of the commission were to be selected from the developing world. The concern about the involvement of the developing world demonstrates that the developed world appreciated that environment problems could only be handled effectively through global efforts. The Commission operated in close collaboration with the Intergovernmental Intersessional

⁴⁶See J. Jager and H.L Ferguson; op cit page 150

⁴⁷ See the United Nations Environment Programme (UNEP); The Impact of Climate Change, Nairobi, 1993

Preparatory Committee of the Governing Council of the UN Environment Programme⁴⁸. The mandate of the Brundtland Commission was stated as follows⁴⁹:

- i) to re-examine the critical issues of environment and development and to formulate innovative, concrete and realistic action proposals to deal with them;
- ii) to strengthen international co-operation on environment and development and to assess and propose new forms of co-operation that can break out of existing patterns and influence policies and events in the direction of needed change; and
- iii) to raise the level of understanding and commitment to action on the part of individual, voluntary organizations, businesses, institutes and governments.

At its Inaugural meeting, the Brundtland Commission selected eight key issues for analysis during its work. They included:

- i) perspectives on population, environment and sustainable development;
- ii) energy, environment and development;
- iii) food security, agriculture, forestry, environment and development;
- iv) human settlements; environment and development;
- Iv) international economic relations, environment and development;
- vi) decision support systems for environmental management;
- vii) international co-operation; and
- viii) industry, environment and development.

⁴⁸ See World Commission on Environment and Development; <u>Report of the World Commission on</u> <u>Environment and Development (Our Common Future Report,)</u>, Oxford University Press, 1987: Annex 2 to the Report.

⁴⁹Ibid, Annex 2 to the Report.

The Brundtland Commission presented a report on its findings to the chairman of the Intergovernmental Intercessional Preparatory Committee, UNEP Governing Council on 10th March 1987. The Brundtland Commission Report popularly known as "Our Common Future Report" has three major parts. Part 1 addresses the Common Concerns, Part 2 addresses the Common Challenges, and Part 3 addresses the Common Endeavors. Proposals on the Institutional and Legal Change are contained in Part 3 of Our Common Future Report.

2.5.1 Significance of Our Common Future Report on Climate Change

In Chapter 12 of our Common Future Report, a number of specific recommendations for institutional and legal change are set out. Although no specific reference to climate change is mentioned, Our Common Future Report generally recommends, the filling of gaps in the national and international law on matters pertaining to the environment. Given that no international legal framework to address the climate change problem was in existence by then, this general recommendation can be taken to have had climate change in mind as well, as one of these sectors without an international legal framework. In this connection Our Common Future Report observes thus:

"National and International law is being rapidly outdistanced by the accelerating pace and expanding scale of impacts on the ecological basis of development. Governments now need to fill major gaps in existing national and international law related to the environment, to find ways to recognize and protect the rights of present and future generations to an environment adequate for their health and well being....⁵⁰

It may therefore be observed that Our Common Future Report laid a foundation for efforts aimed at negotiation of a framework convention on climate change.

2.6 The Influence of the Ozone Layer Convention on Climate Change

The Convention for the Protection of the Ozone layer was adopted in Vienna by 2 1 states and European Economic Community in March 1985. The 21 Articles of the Ozone

⁵⁰ Ibid, see specifically "From One Earth to One World: <u>An Overview by the World Commission on</u> <u>Environment and Development</u>, at page 19

Layer Convention pledge parties to protect human health and the environment from the effects of Ozone depletion. It also provides for participating countries to co-operate in research, observation and information exchange. The link of the Ozone lay & treaties to climate change lies in the fact that, ozone like carbon dioxide is a greenhouse gas. Ozone together with other greenhouse gases are treated together by scientists while calculating their effect on the climate system. The explanation given by scientists is that the various greenhouse gases have different roles in changing the concentration of other gases⁵¹ and must therefore be treated as a whole.

The adoption of the Ozone Layer Convention had a fundamental impact with respect to the development of an international legal regime on climate change. The link lies in the fact that both the Ozone Layer convention and the UNFCCC are aimed at the control of the emission of greenhouse gases into the atmosphere. Therefore, the adoption of the Ozone Layer Convention and the subsequent protocols to the convention provided an important foundation for the development of the international legal regime on climate change. Thus, at a Conference on the Changing Atmosphere in Toronto, Canada, organized by the WMO; the Conference Statement noted that

"while important steps in international law and practices with regard to the control of pollution such as The Trail Smelter Arbitration, 1935/193 Principle 21 of the 1972 Declaration of the UN Stockholm Conference on Human Environment; the Economic Commission for Europe (ECE); Convention on Long Range Transboundary Air Pollution and its Helsinki Protocol 1985; and the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol, have been taken, there was "no overall convention constituting a comprehensive international framework that can address the interrelated problems of the global atmosphere or that is directed towards the issues of climate change³⁵².

⁵¹ See United Nations Environment Programme; The Ozone Layer, Nairobi, IJNEP, 1987 (UNEP / GEMS Environment Library No. 2) at page 30

⁵² See World Meteorological Organisation (WMO); <u>The changing Atmosphere, Conference</u> <u>Proceedings, Toronto, Canada, June27- 30, 1988, see specifically the Conference Statement at pages</u> 292 to 304

2.7. Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) was set up by WMO and UNEP in 1988⁵³. The IPCC issued its First Assessment Report in August 1990 which was debated and discussed by the Second World Conference on Climate Change held in Geneva, Switzerland, November, 1990. Its report soon became a point of reference by policy makers, scientists and experts. In view of the need for more updated information on climate change particularly in the context of the then ongoing negotiations on the UNFCCC, the IPCC requested its three working groups in March 1991 to produce updates of their 1990 reports. The result of this review was the 1992 IPCC Supplement which was completed in February 1992.⁵⁴ The IPCC 1992 Supplement was also undertaken partly in response to the views that were expressed by a number of nations during the first session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC).

2.8 The Second World Climate Conference and the Adoption of the UNFCCC

Plans by the WMO for the Second World Climate Conference (SWCC) began in 1986. The organization of the conference was under the guidance of an international committee chaired by **Prof. J.C.I Dooge** of Ireland. The overall conference chairman was **Mr. Zou Jingmen** of China, the then President of WMO. Details of planning and preparations were carried out by the SWCC coordinators' office established at the WMO Secretariat in August 1989. The SWCC was held at the International Conference Centre in Geneva, Switzerland from 29 October to 7th November 1990. The SWCC was co-sponsored by WMO, UNEP, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and its intergovernmental Oceanographic Commission (IOC), the Food and Agriculture Organization (FAO), and the International Council of Scientific Unions (ICSU). Additional financial support was provided by Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Switzerland, the United Kingdom, the

⁵³ Sec J. Jager and H.L Ferguson; op cit, see specifically presentation by Bert Bolin: <u>'The</u> Intergovernmental Panel on Climate Change (IPCC)" at page 19

⁵⁴ See World Meteorological Organization and the United Nations Environment Programme; <u>Climate</u> <u>Change: The 1990 and 1992 Assessments</u>, June 1992

United States of America, the European Community, the Stockholm Environmental Institute and the Environmental Defence Fund (USA).

2.8.1. The Key Tasks of the Second World Climate Conference (SWCC) The key tasks of the SWCC were:

(i) to formulate recommendations for the continuing the WCP taking into account the IPCC reports as well as ensuring that authoritative scientific information is continually obtained and provided to governments for evaluating impacts, implementing responses, and developing additional international policies to address the issues of global climate change, environmentally sound and sustainable development, the survival of species and the quality of human life; and

(ii) to provide an opportunity for Ministers to consider specific follow-up actions pertaining to the IPCC report and declarations of various international conferences relevant to climate change in an effort to identify elements that could give impetus to negotiations of the framework climate convention; to consider the special needs of developing countries including improvement of their access to climate data and information and technology, and additional financial resources; and to consider specific goals for enhancing intergovernmental co-operation in monitoring, detecting and predicting global climate change⁵⁵.

Experts from all over the world in meteorology, oceanography, agriculture, energy planning, water resource management, land use, forestry, law, health and environmental protection were drawn from all regions. In all, there were 747 participants from 116 countries. The participants reviewed the findings of the IPCC and other bodies. The first six days of the SWCC consisted of scientific and technical sessions of a highly interdisciplinary nature. The final two days of the SWCC consisted of ministerial sessions. There were 908 participants from 137 countries of the ministerial sessions, representing more than 80% of the UN.

⁵⁵ See J. Jager and H.L Ferguson; op cit page 150

2.8.2 The Position of Developing Countries at the SWCC

It is important to note that about 40% of the participants in the scientific and technical sessions were from developing countries, while over 55% of the delegates to the ministerial were from developing countries. The situation of developing countries was given special attention at the SWCC. This was by way of discussion of an IPCC Report on the Participation of Developing Countries. That report was the product of an LPCC Special Committee on the Participation of Developing Countries as quickly as possible the full participation of the developing countries in IPCC activities⁵⁶.

In addressing the special needs of the developing countries, the SWCC in its Conference Statement observed that climate change is largely a consequence of past patterns of economic growth in the industrial countries. It therefore, urged the developing countries not to follow the same pattern of economic growth since this could only compound the problem. The Conference Statement thus asked developing countries to participate in the alleviation of the legacy of environmental damage from prior industrialization. The Conference Statement observed that:

"if they (developing countries) are to avoid, the potentially disastrous course followed by industrialized countries in the past, they need to adopt modern technologies early in the process of development, particularly in regard to energy efficiency"⁵⁷.

Accordingly, to tell developing countries not use the very technologies that would enable them to achieve rapid industrial transformation is akin to telling them to keep in their underdeveloped state.

Nevertheless, the general view of the SWCC was that climate change presented an enormous problem that had to be confronted globally. The magnitude of the climate change problem was underscored by the (then) Executive Director of UNEP, Dr. Mostafa K. Tolba who in his opening address observed thus:

⁵⁶ J. Ripert (France): <u>Report of the IPCC Special Committee on the Participation of Developing</u> <u>Countries in J. Jager and H.L. Ferguson</u>; op cit at page 145.

⁵⁷ Ibid at page 497

"We all know that the World faces a threat potentially more catastrophic than any other threat in human history: climate change and global warming. The scale of this threat may only recently have begun to filter into the public domain, but it has been at the forefront of concern for the international scientific community for more than a decade"⁵⁸.

2.9. Adoption of the United Nations Framework Convention on Climate Change (UNFCCC)

Both the Conference Statement and Ministerial Declaration⁵⁹ of the SWCC called for the development of a convention on climate change without delay after a decision is taken by the 45th session of the General Assembly of the UN recommending ways, means and modalities for further pursuing these negotiations. The UN General Assembly responded to these calls in December 1990 and formally launched negotiations on a framework convention on climate change by its resolution 45/212. These negotiations were conducted by an Intergovernmental Negotiating Committee (INC), chaired by **Jean Ripert (France).** The INC met for the first time in February 1991 and after 15 months of negotiation, governments adopted the UNFCCC at the INC's resumed fifth session on 9th May 1992. The UNFCCC was opened for signature on 4th June 1992 at the UN Conference on Environment and Development (UNCED) (also known as the "Earth Summit") in Rio de Janeiro, Brazil and it came into force on the 21st March 1994. At the moment, about 186 governments all over the world are now parties to the UNFCCC and it is approaching universal membership⁶⁰. Uganda signed and ratified the UNFCCC on the 13th June 1992 and 8th September 1993 respectively.

2.10. Adoption of the Kyoto Protocol to the UNFCCC

Considering that, the UNFCCC simply set out a general framework to tackle climate change, countries were aware that the UNFCCC in its original form would not be sufficient to seriously tackle climate change. At the first Conference of Parties (COP) held in Berlin, Germany, in March / April 1995, in a decision known as the Berlin

⁵⁸ See J.Jager and H.L Ferguson; supra

⁵⁹ Ibid at page 497; See also the Ministerial Declaration of the Second World Climate Conference, 7th November 1990

⁶⁰ See Climate Change Secretariat; <u>A guide to the Climate Change Convention and its Kyoto</u> <u>Protocol</u>; Bonn, 2002 published at http://unfccc.int/resources/convkp.html

Mandate, the parties launched a new round of talks to decide on stronger and more detailed commitments for industrialized countries. After two and a half years of intensive negotiations, the Kyoto Protocol was adopted at COP3 in Kyoto Japan, on 11th December 1997.⁶¹

A new round of negotiations was launched in November 1998 at Buenos Aires to draft the Kyoto Protocol Rule Book. These negotiations culminated into the adoption of the Marrakesh Accords at Marrakesh in October/November 2001. The Marrakesh Accords contain a detailed Rule Book for the Kyoto Protocol. Uganda acceded to the Kyoto Protocol on the 25th March 2002. Under **Article 25** of the Kyoto Protocol, it is provided that the protocol has to enter into force internationally after ratification by at least 55 states that accounts for at least 55% of the total carbon dioxide emissions in 1990 levels.

Conclusion

It is observed that although climate change was not considered a problem of priority concern by the early 1970s, by the late 1980s, the scientific community had gathered sufficient scientific information to the effect that climate change was real and would lead to devastating consequences if no global action was taken to address the situation. It is not surprising therefore, to see that within a period of only about a decade since the holding of the First World Climate Conference in 1979, the international community was able to come up with a global treaty (the UNFCCC) to address climate change. It is also worthwhile to note that the situation of developing countries was given special prominence right from the inception of the debate on climate change even though the climate change problem is essentially a creation of the industrialized world. In relation to the above, whether or not it is justifiable to emphasize the involvement of developing counties in tackling the climate change problem on the basis of the principle of "common but differentiated responsibilities" remains an unresolved issue, with some scholars arguing that it is unfair for developing countries to concern themselves with a problem that is not their creation.

⁶¹ Ibid

CHAPTER THREE

THE CLEAN DEVELOPMENT MECHANISM AND SUSTAINABLEDEVELOPMENT: THE INTERNATIONAL PERSPECTIVE

3.1 Introduction

The concept of Clean Development Mechanism (CDM) is closely related to Sustainable Development (SD). The CDM is one of the mechanisms contained in the Kyoto Protocol to the UNFCCC. The CDM as set out under Article 12 of the Kyoto Protocol is intended to bring about cooperation in emissions reduction between industrialized countries and the developing countries. Under the Kyoto Protocol, industrialized countries are subject to specific greenhouse gas emissions reductions while developing countries are not subject to any emissions reductions. The relationship between the CDM and SD lies in the stated purpose of the CDM, which is, that the mechanism is intended to assist developing countries to achieve sustainable development and at the same time to assist industrialized countries to achieve their emission reduction commitments. At the international scene, efforts aimed at the operationalisation of the CDM have generated various issues ranging from equity considerations, socio-economic considerations and the failure of previous similar mechanisms, namely, Activities Implemented Jointly (AIJ) and Joint Implementation (JI). A debate of the above issues has been undertaken in an atmosphere of the North /South divide. While the North sees climate change as purely an environmental issue, the South views climate changes as a development issue.

3.2 Origin of the Clean Development Mechanism

The CDM originates from an idea proposed by Brazil during the 7th session of the Ad Hoc Working Group on the Berlin Mandate on the 28th May 1997.⁶² That idea was known as the Green Development Fund (GDF). Under this arrangement, a tax was to be levied on industrialized countries (Annex 1 Parties) for non-compliance with their emissions reduction commitments. Those countries that failed to meet their reduction targets or to take expected action would be charged a levy and the monies thus obtained

⁶² See Albert Mumma; <u>"The Poverty of Africa's Position at the Climate Change Convention</u> <u>Negotiations</u>" (undated), pages 6-7 published at: http://lion.meteo.go.ke/cna

would go into a fund to developing countries (Non-Annex I Parties) with their emissions reduction and limitation efforts.⁶³ The accumulated funds would then be used for financing projects aimed at climate change mitigation in developing countries. Guidelines for the distribution of funds to developing countries were to be developed. However, the above proposal was not included in the negotiating text presented to the 8th session of the Ad Hoc Working Group which was held in October 1997.

During the 8th session of the Ad Hoc Working Group on the Berlin Mandate in October 1997, the Group of 77 and China re-introduced the idea of GDF. The GDF idea was picked up in November, 1997 at the last of the informal meetings in Japan (the host country) that had been organized in Tokyo, Japan in the period preceding the holding of the Kyoto Conference to enable parties exchange views and explore possible agreements that could emerge at the Kyoto Conference. In the course of exchanging views between the US and the Brazilian delegations, the possibility arose of establishing a system which did not require the payment of fines for non-compliance but rather allowed participating parties to buy some kind of license to exceed the assigned amount of GHG emissions This new idea was introduced to other delegations at the beginning of the Kyoto Conference and a negotiating team open to all the delegations was set up to consider the proposal under the chairmanship of a member of the Brazilian delegation. The team of negotiators agreed on the basic features of the CDM that was finally included in

Article 12 (2) of the Kyoto Protocol which provides thus: "The purpose of the Clean Development Mechanism shall be to assist parties not included in Annex 1 in achieving sustainable development and in contributing to the ultimate objective of the convention and to assist parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3". It is important to note that the idea of the word "Fund" was dropped in favour of that of a "Mechanism" mainly to stress the importance of facilitation rather than the establishment of funding institution

⁶³ See Richard S. Odingo; <u>The Clean Development Mechanism in Africa: A Framework for the Design of Sustainable Development Projects; Climate Network Africa</u> (CAN), First Edition, December, 2001, Nairobi, Kenya at pages 1 to 19

that could easily compete with the Global Environment Facility (GEF). According to Albert Mumma⁶⁴, "The CDM that was enshrined in Article 12 of the Kyoto Protocol was the result of a political compromise that bought together US arguments that the mechanism should include elements of emissions trading based on adoption of mandatory reduction commitments by all countries — developed and developing alike - and the developing countries' perception of CDM as a new channel for financial assistance, investments to promote sustainable development, technology transfer and the promotion of equity".

3.3 The Concept of Sustainable Development (SD)

It is important to separately discuss the SD concept since attainment of SD objectives is one of the determinants of eligibility of a given CDM project. The Brundtland Report defines Sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"⁶⁵. The SD concept is reinforced by the provisions of Principle 3 of the Rio Declaration on Environment and Development which provides that "the right to development must be fulfilled so as to equitably meet developmental needs of present and future generations⁶⁶". The underlying basis of the SD principle is the reconciliation of the needs of development with the protection of the environment. Thus, even before formal recognition of the SD concept in international environment instruments, its application was recognized in major development projects⁶⁷.

The thrust of the SD principle into the international arena is demonstrated by the importance attached to the SD concept in earlier international conferences such as the Founex Meeting of Experts in Switzerland in June 1971, the Conference on

⁶⁴ Albert Mumma; supra pages 6-7

⁶⁵ See World Commission on Environment and Development (WCED): Our Common Future Report: Chapter 2: "Towards Sustainable Development", Oxford University Press, 1987, at page 1

⁶⁶ The Rio Declaration on Environment and Development; see also John Ntambirweki; <u>Law and</u> <u>Sustainable Industrial Development</u>²⁰ pages 24-26 in the United Nations Environment Programme; Sustainable Industrial Development UNEP, Nairobi, 1998

⁶⁷ See Judgment of Vice President Weeramantry in the <u>"Gabcikovo-Nagymaros Project" (Hungary /</u> <u>Slovakia)</u> reported in United Nations Environment Programme; Compendium of Judicial Decisions on matters related to the Environment; International Decisions, Volume 1 December 1998 at pages 301-307

Environment and Development in Canberra in 1971, the Stockholm Conference, 1972, Declaration on the Right to Development, 1986 and the UN Assembly Resolution 2849 (XXVI). Principle II of the Stockholm Conference Declaration stressed the need to balance both the development and environment concerns in the development process⁶⁸. According to the Brundtland Report⁶⁹, "Sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and, institutional change are all in harmony and enhance both current and the future potential to meet human needs and aspirations".

Recent international conferences have greatly enhanced the importance of the SD concept, At the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, 1992 (the Earth Summit), it was agreed by the participants that the protection of the environment and economic development are fundamental to sustainable development. Based the consensus reached on the SD concept, the participants adopted the global programme entitled Agenda 21. After the Earth Summit, the world's nations further met in several conferences under the auspices of the United Nations, including the International Conference on Financing Development as well as the Doha Ministerial Conference, at which a comprehensive vision for the future was defined. At the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, 28th August to 4 September 2002, representatives of the people of the world re-affirmed their commitment to sustainable development⁷⁰

3.3.1 Application of the SD Concept in the Gabcikovo Nagymaros Project Case

The **Gabcikovo vs. Nagymaros** Case⁷¹ arose out of a treaty signed in 1977 between Hungary and Czechoslovakia. Following the partition of Czechoslovakia in 1993, Slovakia took the place of Czechoslovakia under the treaty. The treaty provided for the construction and operation of a barrage system on the section of the Danube River

⁷¹ See Gabcikovo —Nagymaros Case, op cit at page 255

⁶⁸ Ibid pages 298-299

⁶⁹ Our Common Future Report; op cit; pages 3 to 4

⁷⁰ See United Nations Division for Sustainable Development; Johannesburg Declaration on Sustainable Development 2002, published at http://www.johannesburgsummit .org. see also Ismail Serageldin and Alfredo Sfeir – Younis (eds); Effective Financing of Environmentally Sustainable Development: Proceedings of the Third Annual World Bank Conference on Environmentally Sustainable Development, September, 1996

within the two countries. It was to be a joint investment to produce hydro electricity, improve navigation on the Danube River, and protect areas along the banks against flooding. The treaty provided for the building of two locks, one at **Gabcikovo** (in Slovak territory) and the other at **Nagymaros** (in the Hungarian territory). Work on the project started in 1978. Due to domestic criticism focusing on the economic and environmental implications of the project, Hungary suspended the works at Nagymaros in May 1989. Later in October 1989, it abandoned the works altogether. Meanwhile, work on the Gabcikovo sector was well advanced. On the other hand, very little work had been done on the Nagymaros sector. In May 1992, Hungary terminated the treaty. Czechoslovakia protested Hungary's decision. In April 1993, the parties agreed to submit the dispute to the International Court of Justice (ICJ). They requested court to decide following issues:

(i) Whether the Republic of Hungary was entitled to suspend and subsequently abandon in 1989, the works on the Nagymaros Project and on the part of the Gabcikovo Project, for which the treaty attributed responsibility to the Republic of Hungary; and

(ii) Whether the Czech and Slovak Republic was entitled to proceed in November, 1989, to the provisional solution and put it into operation in October 1992.

The ICJ held that Hungary's uncertainties as to the negative ecological impact of the project could not alone establish the objective existence of a peril that could justify invoking of state necessity by Hungary to abandon the treaty. The ICJ noted that the environmental dangers highlighted by Hungary were mostly of a long term nature, and remained uncertain and that in any case, Hungary had means other than abandonment of the work, of responding to any such peril, for instance the adoption of mitigatory measures.

The ICJ's decision was however not unanimous. There were dissenting opinions, the most important of which is the judgment of Vice President Weerarnantry⁷² in so far as his judgment highlights the significance of the SD concept to the facts of the case. Judge Weeramantry observed that in a case of this nature, apart from the possibility of environmental harm, other factors too such as the developmental aspects are important.

⁷² Ibid

The judge stressed that the project was important to Slovakia from the point of view of development and therefore, the court had to balance between the environmental and developmental considerations which it could only do through the principle of sustainable development which the Judge considered to be an integral part of modern international law.

While discussing the need for a formula of balancing both environment and development of a given project, Judge Weramantry observed thus:

"It is clear that a principle must be followed which pays due regard to both considerations. Is there such a principle and does it command recognition in international law? I believe the answer to both questions is in the affirmative. The principle is the principle of sustainable development and in my view; it is an integral part of modern international law. It is clearly of the utmost importance both in this case and more generally.... Each principle cannot be given free rein, regardless of the other. The law necessarily contains within itself the principle of reconciliation. This case offers a unique opportunity for the application of that principle, for it arises from a treaty which had development as its objectives, and has been brought to a standstill over arguments concerning environmental considerations."⁷³.

The most important point stressed by the Judge in the above case is that at the heart of the SD concept is the harmonization of both the environment and development needs. The Judge's observations in the above case are relevant to the CDM concept under discussion. The relevance lies in the fact that, in the pursuit of efforts to contain the climate change problem, there should be a mechanism whereby climate change mitigation efforts are balanced against development needs.

3.3.2 The Intergenerational Concept

The Intergenerational Concept addresses the need for generations to exploit the environment responsibly to enable future generations to enjoy the right to a healthy

⁷³ Ibid

environment which is a constitutionally guaranteed right⁷⁴. The Intergenerational Concept was discussed in great detail in the case of **Oposa** — **Vs- Factoran**⁷⁵. In this case, the principal petitioners were all minors duly represented and joined by their respective parents. The petitioners were all citizens of the Republic of Philippines and they filed the action against the Department of Environment and Natural Resources, for the protection of the country's virgin tropical forests which were being threatened by human exploitation. The petitioners further asserted that they represented their generation as well as generations yet unborn. Before the court went into the merits of the case, they considered the issue of whether the petitioners had the ability to represent their generation as well as generations yet unborn. The ruling of the court on this issue was delivered by Divide, JR, J who observed thus:

"Petitioners minors assert that they represent their generation as well as generations yet unborn. We find no difficulty in ruling that they can, for themselves, for others of their generation and for the succeeding generations file a class suit. Their personality to sue on behalf of the succeeding generations can only be based on the concept of intergenerational responsibility in so far as the right to a balanced and healthy ecology is concerned. Such a right ... considers the rhythm and harmony of nature...... such rhythm and harmony indispensably include, inter alia, the judicious disposition, utilization, management, renewal and conservation of the country's natural resources to the end that their exploitation development and utilization be equitably accessible to the present as well as future generations."⁷⁶

Consequently, it may be noted that the Intergenerational Concept is a sub-concept of the SD concept in so far as its rationale and meaning is no different from that expounded in the SD concept, which is development that meets the needs of the present and future generations. It is remarkable to note however, the judicial recognition given to the Intergenerational Concept the court thereby boosting its relevance as a legal principle. The Intergenerational Concept is recognized by Article 3 (1) of the UNFCCC which

⁷⁴ See Article 39 of the Constitution of the Republic of Uganda, 1995

⁷⁵ see **Oposa** — **Vs- Factoran** reported in the United Nations Environment Programme; Compendium of Judicial Decisions on matters related to the environment; National decisions, Volume 1 at page25 ⁷⁶ Ibid

provides that "the parties protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with the principle of common but differentiated responsibilities and respective capabilities."

3.3.3 Application of the SD Concept to the Clean Development Mechanism

The linkage between the CDM and SD Concept is to be found in the definition of the CDM itself. Article 12 (2) of the Kyoto Protocol provides that "the purpose of the Clean Development Mechanism shall be to assist parties not included in Annex 1 (developing countries) in achieving sustainable development and in contributing to the ultimate objective of the convention, and to assist parties included in Annex I (developed countries) in achieving compliance with their quantified emissions limitation and reduction commitments." It is expected that the implementation of the CDM as set out above will therefore, witness the development of projects with an element of sustainable development carried out on the territories of developing countries (Non-Annex 1 Parties) by the developed countries (Annex I parties). Nevertheless, the concern amongst scholars has been that in view of the market based mechanism of CDM, the sustainable development role of CDM might be overlooked in the process.

As understood in the context of the New Partnership for Africa's Development (NEPAD),⁷⁷ CDM investments are expected to bring to the African countries (Uganda inclusive) accelerated economic growth and development; increased employment; reduction in poverty and inequality; diversification of productive activities, enhanced international competiveness and increased exports; and increased African integration and of course this includes East African Federation.

Specifically, with regard to the Ugandan context, CDM will be expected to address the goals set out under the Poverty Eradication Action Plan (PEAP) and the Plan for Modernization of agriculture (PMA). Some of the potential CDM investment sectors include transport and energy (studies on these two sectors have revealed that they constitute major sources of greenhouse gas emissions). Examples of projects that can be commenced in the energy sector include production of liquid fuel from biomass, biomass co-combustion, wind energy, solar-thermal for heat and electricity,

⁷⁷ See the New Partnership for Africa's Development (NEPAD), October, 2001

photovoltaic, methane production from solid and liquid residues and waste thermal generations from biomass sources and small hydro-electric plants⁷⁸. In return, benefits from such projects in developing countries are expected to contribute towards the enhancement of development indicators which include eradication of poverty, slowing population growth, reducing urban sprawl, and improvement of employment opportunities for rural women. In summary according to **Richard S. Odingo⁷⁹** "CDM has a great potential for addressing the sustainable development needs of many of Africa's rural areas and efforts need to be made to attract the necessary investments". However, as discussed above, the key issue of concern is how to ensure that a given CDM investment complies with sustainable development objectives. Considering that these projects will essentially be market driven, it is suggested that countries like Uganda should invest more in the enhancement of the local institutional framework which will in turn ensure that the SD objectives are promoted and emphasized.

3.4 The Concept of Common But Differentiated Responsibilities

Principle 7 of the Rio Declaration on Environment and Development (1992) sets out the concept of common but differentiated responsibilities and it provides that "States shall cooperate in a spirit of Global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, states have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command". In the context of climate change, the concept of common but differentiated responsibilities is set out in Article 4 of the UNFCCC and Article 10 of the Kyoto Protocol. The above concept urges both developed and developing countries to take measures to combat climate change but the action to be taken is dependent on the differentiated responsibilities that these countries have assumed in relation to the contribution to the climate change problem. It is now a proven scientific fact that the developed world has the largest share of responsibility with regard to the current levels of greenhouse gas

⁷⁸ See Richard S. Odingo; op cit at pages 14 to 15

⁷⁹ Ibid

concentrations in the atmosphere. This scientific fact is recognized by Recital 3 to the UNFCCC. Specifically, with regard to the CDM, the concept is applicable in so far as it is supposed to guide participating countries as to their rights and obligations to facilitate proper functioning of the CDM. The rationale of this principle as expressed in Principle 7 of the Rio Declaration is that those states who impose a disproportionate pressure on the global environment and which command high levels of technological and financial resources, bear a proportionately higher degree of responsibility in the international pursuit of sustainable development.⁸⁰

It must be noted right from the outset that CDM is a market based mechanism. In this respect, CDM is a voluntary mechanism that must be approved by each party involved including both the investor and host countries.⁸¹ In this kind of environment, it is highly probable that developed countries with their vast wealth and financial resources are likely to have unfair advantage over developing countries with weak economies and highly dependent on donor funds and aid (and yet the CDM is partly designed to benefit the developing countries in achieving sustainable development). The discrepancies of development status between developed and developing countries is evident in the capital industrial development, technological advancement, energy structures and resources⁸². With this kind of setting, the ability of developing countries such as Uganda to realize the benefits of the market based CDM Mechanism is questionable. Under a CDM project, developed countries are expected to facilitate the transfer of environmentally sound technologies, technical expertise, human resources, and capital resources e.tc to developing countries as set out under Article 10 of the Kyoto Protocol. However, as already observed, these benefits may only be realizable by only a few countries with the

⁸⁰ See Report of the Expert Group Meeting on Identification of Principles of International Law for Sustainable Development, Geneva, Switzerland 26th to 28th September 1995; prepared by the Division for Sustainable Development for the Commission on Sustainable Development, 4th session 18th April to 3rd may 1996, New York, USA

⁸¹ See Paige Brown; <u>Climate, Biodiversity, and Forest : Issues and Opportunities Emerging From</u> <u>The Kyoto Protocol, World Resources</u> Institute and Forest Frontiers Initiatives In Collaboration with IUCN (undated) at page 11

⁸² See J.C Onyango And C.N. Kiragu; <u>"Indicators Of Sustainable Development With Regard To</u> <u>CDM"</u>; <u>Ministry Of Environment And Natural Resources</u>, <u>Kenya</u>, <u>Paper Presented At A</u> <u>Workshop On Understanding And Integrating Sustainable Development Into The CDM Of The</u> <u>Kyoto Protocol-Focus On Africa</u>; A Climate Network Africa Workshop For African Experts, 27th To 29th September 1999

economic capability to, in the first place, attract a given CDM investment project to their territories.

Another equity consideration is that developed countries might attempt to avoid taking climate change mitigation measures back at home and instead emphasize CDM projects in the developing world to achieve GHG emission reduction commitments which they are subject to, under the Kyoto Protocol. If this happens, then it would mean that developed countries will continue to consume products that emit GHG which are necessary for the advancement of industrial growth while emphasizing climate change mitigation measures in the territories of developing countries (thereby affecting the economic and industrial growth potential of economies of developing countries). This would place, developing countries in an inequitable position and permit the exploitation of developing countries by developed countries. The researcher agrees with Albert Mumma,⁸³ that the proper thing to do is for the developed countries to take the lead in the reduction of GHG concentrations in the atmosphere and allow developing countries to increase their global GHG emissions because without increasing GHG emissions, developing countries will find it difficult to achieve economic and industrial growth.

3.5 Comparison of Joint Implementation (JI) / Activities Implemented Jointly (AIJ) and the CDM

Joint Implementation (JI) is provided for under Article 4.2 (a) of the UNFCCC which provides that developed country parties and other parties included in Annex 1 may implement policies and measures aimed at mitigation of climate change jointly and may assist other parties in contributing to the achievement of the ultimate objective of the UNFCCC. It is important to note that JI is a commitment that was intended to apply only to the developed country parties.

During the first Conference of Parties (COP1) to the UNFCCC in March 1995, developing countries protested at their exclusion from the JI initiatives. A compromise was worked out and JI was renamed Activities Implemented Jointly (AIJ). Under AIJ initiatives, the voluntary involvement of developing countries was provided for. There are two main phases of the AIJ projects and these include, the Pilot Phase (1995 - 2000)

⁸³ See Albert Mumma; op cit

and the Implementation Phase (beyond 2000). The pilot phase of AIJ projects received remarkable attention in countries with Economies in Transition (EIT) such as the Asian and Latin American countries. Most of the AIJ projects have essentially involved the adoption of clean technologies as well as the development of carbon sinks⁸⁴. Africa was virtually excluded from the AIJ Pilot Phase. Only one country in sub-Saharan Africa participated in the AIJ experiment and this was Burkina Faso⁸⁵. The main reasons for the non-participation of the African region have been identified to be:⁸⁶

(i) AIJ emphasis on emissions reduction and yet the African region has no Substantial GHG emissions to reduce;

(ii) AIJ's reliance on market forces. The African region was disadvantaged regard because its markets are not attractive to investors;

(ii) absence of the necessary administration and technical infrastructures on the African continent; and

(iv) Lack of strategic vision amongst African countries with regard to the potential benefits of the AIJ.

The principal objective of the Burkina Faso AIJ project which was funded by the Norwegian Government was to contribute to meeting the rapidly growing urban demand for household fuels without further loss of forest cover or loss of the ecosystems carbon sequestration potential⁸⁷. The specific objectives of the project were⁸⁸:-

 (i) introduction of efficient carbonization techniques, community based forest management, kerosene cooking stoves and the promotion of photovoltaic (PV) systems to the rural communities; and

i)

 ⁸⁴ See Gabriel M. Mailu; <u>"AIJ/ JI Experience In Africa; Advantages And Disadvantages; Possible Contracts And Similarities With The CDM"; Paper Presented At The Works Shop On Clean Development Mechanism Of The Kyoto Protocol, Nairobi Kenya, July 13 -15, 1998 At Page 2
 ⁸⁵ See Youba Sokona Et al; "<u>The Clean Development Mechanism: What Prospects for Africa?</u>" (Undated) Published At: http://www.enda.sn/energie/edm2.html. See Also Richard S Odingo; Op Cit ⁸⁶ Ibid
</u>

⁸⁷ See Also Richard S Odingo; Op Cit at pages 14 to 19

⁸⁸ Ibid

- ii) enhancement of community participation, promotion of sustainable development and environmental management as well as, the removal of market barriers to kerosene stoves and photovoltaic systems.
- As compared to CDM, AIJ introduced the idea of involvement of developing countries (though at a late stage), which is also one of the main objectives of the CDM (though it is much more emphasized). The main similarity of AIJ and CDM projects appears to be the emphasis on the co-operation between developing and developed countries in the attainment of GHG emissions reduction. Both the AIJ and the CDM are essentially market based with the result that market forces will take the lead in the allocation of potential project in particular countries. This places African countries including Uganda at a disadvantage since they can easily be out-competed by the developed countries or countries with Economies in Transition (EIT).

3.6 The Special Role of the Developed World

- Article 3 (1) of the UNFCCC imposes an obligation on developed countries to take the lead in addressing the climate change problem. This is logical in view of the fact that the developed countries are responsible for the largest share of historical and current global emissions of greenhouse gasses⁸⁹. In the United States for instance, approximately 6.6 (almost 15,000 pounds of carbon equivalent) of GHGs are emitted per person every year. The US currently emits more GHGs per person than any other country in the world.
- The above obligation incumbent on the developed countries runs through the entire UNFCCC as well as the Kyoto Protocol. Thus, developed countries are under an obligation to facilitate the transfer of environmentally sound technologies, know-how, practices and processes to developing countries and the strengthening of systematic observation and national scientific and technical research capacities and capabilities in developing countries as well as the provision of financial resources⁹⁰. Specifically with respect to CDM, developed countries are under an obligation to assist the developing

See Recital 3 of the preamble to the United Nations Framework Convention on Climate Change (UNFCCC) ⁹⁰ See for instance Article 5 of the UNFCCC and Article 10 of the Kyoto Protocol

countries to achieve sustainable development⁹¹. Most of the financial assistance to be rendered to the developing countries is expected to be channeled through the Global Environment Facility (GEF). The GEF was established by the World Bank, United Nations Environment Programme (UNEP), and the UN Development Programme (UNDP) in 1991. The technical and research assistance is partly channeled through the IPCC which prepares regular comprehensive assessments on the state of the climate change science as well as other technical papers⁹². In addition to the assistance channeled to developing countries through the above institutions, developed countries are expected to make individual assistance to developing countries in accordance with the UNFCCC and the Kyoto Protocol.

To appreciate the significance of the contribution of the developed countries to the developing countries, it is worthwhile to note that since 1991; approximately US\$ 1.3 billion has been provided in grants from the GEF Trust Fund for climate change activities. An additional US\$ 6.9 billion was contributed through co-financing from bilateral agencies, recipient countries and the private sector, making a total of US\$ 8.2 billion. Between July 2000 and June 2001, total project financing for climate change activities exceeded US\$ 817 million of which the GEF provided US\$ 197 million in grant financing⁹³. In addition to the above, the Marrakesh accords established two new funds under the UNFCCC, namely a special climate change fund, which will finance projects relating to capacity building, adaptation, technology transfer, climate change mitigation and economic diversification for countries highly dependent on fossil fuels and the least developed countries fund which will support a special work programme to assist least developed countries. A number of developed countries collectively contributed US\$ 410 million annually in extra funding for developing countries by the year 2005 with this level was renewed in 2008. An adaptation fund has also been established under the Kyoto Protocol to further enhance the financing mechanism. Further, Annex I countries (namely Canada, Finland, Japan, the Netherlands, Norway and Sweden) and other large Corporations have contributed US\$ 180 million to the

⁹¹ See Article 12 of the Kyoto Protocol

 ⁹² See Climate Change Secretariat; <u>A guide to Climate Change Convention and its Kyoto Protocol</u>, Bonn, 2002 published at: <u>http://unfccc.int/resource/convkp.html</u>
 ⁹³ Ibid

World Bank's Prototype Carbon Fund (PCF) started in 1999 to fund emissions reduction projects. The PCF has funded such projects in Uganda and Chile. It is clear from the above, that developed countries have taken tremendous steps to fulfill their obligations under the UNFCCC and the Kyoto Protocol. It follows that Developing countries should equally take the necessary steps to establish a conducive atmosphere in their countries to facilitate the inflow of the much needed assistance from the developed countries.⁹⁴

The only worry is that there might develop a tendency whereby developed countries will ignore taking climate change mitigation measures in their own home economies, and instead encourage such mitigation measures to be undertaken only in developing countries. This is detrimental to the developing countries since their ability to utilize the consumption of high carbon emitting products (which are necessary to facilitate industrial growth) will be undermined, and yet the developed countries will continue to consume such high carbon emitting products to further enhance their industrial growth. This will only aggravate the situation by widening the development gap between the industrialized countries and the developing countries.

3.7 Misgivings of the Developed World: The Case of the US Rejection of the Kyoto Protocol

The US signed the Kyoto Protocol on 12th November 1998 but its signature does not make the Kyoto Protocol legally binding on the US since this represents only a political statement of approval. In 2001, the US indicated that it did not intend to pursue ratification of the Kyoto Protocol⁹⁵. The US rejection of the Kyoto Protocol represents a major setback to efforts aimed at tackling the climate change problem in two important respects. Firstly, the US is estimated to emit more GHGs than any other country in the world and accordingly its refusal to ratify the Kyoto Protocol is a fundamentally worrying development. Secondly, the US has dealt a serious blow to the progress towards the entry into force of the Kyoto Protocol since for it to enter into force 55

⁹⁴ Ibid

⁹⁵ See David M. Ackersman; <u>"Global Climate Change; Selected Legal Questions About The Kyoto</u> <u>Protocol"</u> CRS Report For Congress, March 29th 2001

countries must have ratified it and the ratifying countries must collectively represent at least 55% of the 1990 emissions from industrialized countries⁹⁶.

There have been suggestions that in face of the US rejection of the Kyoto Protocol, other developed / industrialized such as those that comprise European Union should take remedial steps to ensure ratification or implementation of the Kyoto Protocol. Thus the European Union could possibly push for a unilateral ratification of the Kyoto Protocol to ensure its entry into force. However, here too, obstacles are bound.⁹⁷ For instance, it is difficult to fully mobilize the support of all EU countries. It is the researcher's opinion that the main reason that explains the reluctance of some developed countries including the US to embrace ratification of the Kyoto protocol is the desire by those countries to preserve their industrial supremacy over the countries of the world. Active participation in climate change initiatives set out under the UNFCCC and the Kyoto protocol will necessarily require the free flow of technology, technical expertise and financial resources from developed countries to the developing countries and yet the US and some developed countries fear that this will compromise their industrial supremacy. It is observed that the non-participation of some of the developed countries notably the US may seriously undermine efforts aimed at the implementation of the UNFCCC and the Kyoto protocol.

3.7.1 Legal Responsibility of the Developed Countries

In light of the unwillingness of some of the developed countries to take positive steps to address climate change, one may advance the view that these countries do not have much of a choice since they are under a legal obligation to accept the blame for climate change and take remedial steps⁹⁸. Under international environmental law, a state is prohibited from allowing activities on its territory to inflict serious damage on the environment of other states, or on parts of the environmental law is recognized by Principle

⁹⁶ See Article 25 of the Kyoto Protocol

⁹⁷ See Christian Egenhofer and Jan Cornhill; "<u>How the EU can Review the Kyoto Protocol</u>" CEPS 26th March 2001., See also Thomas Legge and Chritiam Egenhofer; <u>"After Marrakesh: The regionalisation</u> <u>of the Kyoto protocol"</u>, November, 2001, see also Thomas Legge. <u>"Keeping Major Players Inside will</u> <u>be the Key to Making Success of Kyoto"</u>, June 2002.

⁹⁸ Recital No. 3 of the Preamble to the UNFCCC recognizes that the Climate Change problem originated from Developed countries

21 of the Stockholm Declaration on Human Environment (1972) and is reinforced by Recital No. 8 of the preamble to the UNFCCC. The above principle has been judicially considered in the **Trail Smelter case**,⁹⁹ in which it was observed that no state has a right to pollute the territory of another state by fumes. The above case sets down the general principle of law with regard to state responsibility for environmental damage. It is possible for the above principle of law to be applied to the climate change problem. Thus, developed countries can be held legally liable for the rising levels of GHGs that threaten to upset global climate in a significant manner, to the extent that climate change has been said to be the most serious environmental problem facing the earth. Nevertheless, such a legal challenge is unlikely to have any significant practical impact and in any case such a legal challenge could encounter serious technical difficulties such as the determination of emission levels of a given greenhouse gas attributable to any particular country.

3.8 The International Legal Framework of CDM

A review of the international legal framework of CDM is based on CDM projects that have so far been funded by the Prototype Carbon Fund (PCF) of the World Bank, The PCF has developed various legal instruments to help operationalise the CDM, and it is these legal instruments that are reviewed in this section. Major legal instruments for the operationalisation of the CDM include; a letter of Endorsement or No Objection; a Letter of intent; a Letter of Approval; and an Emissions Reductions Purchase Agreement. Most of the emissions Reductions Purchase Agreements are closely linked to specific projects and accordingly, they are constantly adapted to reflect different project types and risks. The above legal instruments have been refined to maximize operational efficiencies and minimize risk. The PCF has developed more specific legal agreements to mitigate risks identified with individual projects; it has translated the provisions of the Marrakesh Accords into its legal agreements; and has also developed an approach specifically tailored to the needs of Joint Implementation projects (JI)

⁹⁹ See the smelter case, <u>United States of America --vs.- Canada (1938) and (1941</u>); cited in United Nations Environment Programme; Compendium of Judicial Matters related to the Environment, international divisions, Vol 1 December 1998.

which are implemented only in Annex I countries. In this respect, a Host Country Agreement has been developed to specifically cater for JI projects.¹⁰⁰

With the issue of a Letter of Endorsement, the PCF obtains the general consent from the host country for the further development of the project as a CDM project. After this, a Letter of Intent is signed by the potential seller of emissions reductions and the World Bank as a Trustee of the PCF. With this document, the PCF declares its intention to purchase emissions reductions generated by specific projects under the terms to be agreed in return for the exclusive right to contract for the purchase of emissions reductions. By signing this letter, the project entity commits itself to repay the project preparation costs if it decides not to proceed to negotiate an Emissions Reductions Purchase Agreement with the PCF Trustee. The Emissions Reductions Purchase Agreement (ERPA) is entered into by the entity selling emissions reductions generated by the project and the PCF Trustee. Under the ERPA, the project entity sells to the PCF, all rights, title and interests in and to all, as a part of the emission reduction generated by the project. The PCF Trustee commits to pay the purchase price upon delivery of the contracted amount of emissions reductions generated by the project. The ERPA contains provisions on satisfactory project implementation, identifies common project risks, and requests the maintenance of insurance by the project entity. Figure below shows the legal agreements necessary for the operationalisation of a given CDM project by the PCF.

3.9. Conclusion

The CDM is important to both developed and developing countries in two major respects. Firstly, CDM is intended to assist developed countries (parties included in Annex 1) in achieving compliance with their quantified emission limitation and reduction commitments. Second1y, with regard to developing countries (parties not included in Annex 1) CDM is, intended to assist them to achieve sustainable development. A given CDM project must satisfy both of the above two key elements if it is to be considered successful. Specifically with regard to African countries such as Uganda, CDM is supposed to lead to sustainable development by encouraging the following: poverty

¹⁰⁰ World Bank PCF Annual Report, 2002

eradication, foreign debt elimination; achievement of real growth; additional financial resources; appropriate and real technology transfer; capacity building; and information development.101 In the Ugandan context CDM is expected to facilitate the implementation of government programmes such as PEAP and PMA, while in the wider African context, initiatives such as NEPAD are expected to receive support from CDM. However, there are concerns that CDM is likely to tempt developed countries to shift emphasis from taking domestic action at home and instead emphasize CDM projects on the territories of developing countries. If this happens, the development inequity between developed and developing countries will deepen since developed countries will continue to industrialize using fossil — fuel based technology (thus continuing to emit more GHGs into the atmosphere) while discouraging the attempts by developing countries to use that very technology by encouraging the implementation of CDM projects. It is for such reasons that some scholars have described the CDM and other related mechanisms as "environmental colonialism"¹⁰². In this regard, while African countries appear to have embraced the CDM wholeheartedly to help them achieve sustainable development, they should carefully monitor CDM implementation to ensure that it does not end up being detrimental to their economies. In addition, since participation in CDM projects is voluntary and essentially market based, it will be up to individual countries to put in place conducive market environments to facilitate their effective participation in CDM projects.

 ¹⁰¹ See J.C Onyango And C.N. Kiragu; <u>"Indicators Of Sustainable Development With Regard To CDM"; Ministry Of Environment And Natural Resources, Nairobi Kenya; 1998
 ¹⁰² See A. Agarwal and S. Narain; <u>Global Warming in Unequal World; a case of Environmental Colonialism (New Delhi: Center for Science and Environment, 1991)</u>
</u>

CHAPTER FOUR

FRAMEWORK FOR THE IMPLEMENTATION OF THE CLEAN DEVELOPMENT MECHANISM IN UGANDA

4.1. Introduction

In order for the CDM to be successfully implemented in Uganda, there must be a supportive framework through which such implementation is to be done. Since participation in CDM projects is voluntary¹⁰³, it is up to individual countries to put, in place such frameworks depending on whether they consider such CDM projects as beneficial to them. In this chapter, a review of the legal, regulatory, policy and institutional framework with regard to the implementation of the CDM has been undertaken with the major focus being the adequacy of such a framework to CDM implementation. Other issues such as Uganda's CDM potential, private sector involvement, CDM capacity building, and constraints in CDM implementation have also been evaluated and discussed. It is necessary to set out statistical climate data to the climate change situation in Uganda. According to the National Census of 2002, Uganda's population stood at 24.6 million people. By the year 2000, Uganda's population living below the absolute poverty line was estimated at 35%.¹⁰⁴ Some of the climate change studies that have been carried out in Uganda so far include; inventory of greenhouse gases, vulnerability and adaptation assessments, and policy implications of implementing the UNFCCC and Clean Development Mechanism studies.¹⁰⁵ Uganda's transport sector is the major consumer of fossil fuels and it accounts for about 75% of the fossil fuel import bill and it is estimated that there are approximately 400,000 vehicles, (as per 2000/2001 financial year). The estimated average growth rate is 10,000 vehicles per year. According to the National Greenhouse Gas Inventory Report,¹⁰⁶ the main source of GHGs is biomass burned for energy, agricultural waste burning,

 ¹⁰⁴ See Ministry Of Water And Environment; <u>Uganda's Initial National Communication To The</u> <u>United Nations Frame Work Convention On Climate Change</u>, October 2002 Page 4
 ¹⁰⁵ Ibid page (viii)

¹⁰³ See Participation Requirements Set Out In Decision 15/CP .7 ; Principles, Nature And Scope Of The Mechanisms Pursuant To Articles 6, 12 And 17 Of The Kyoto Protocol

¹⁰⁶ See Ministry Of Natural Resources Of The Republic Of Uganda And The Department Of Meteorology; Final Report On Sources And Sinks Of Green House Gases In Uganda; A UNEP/GEF Sponsored Project, August 1994

savannah burning and grassland conversion. The forestry sector is considered to be the major mitigation option for climate change since forests act as sinks for carbon dioxide.

4.2 Review of the Policy Framework

Policy instruments that are relevant to CDM implementation in Uganda include, the Environment Policy, Forestry Policy, Energy Policy, Population Policy, and Health Policy, Wetlands Policy, Water Policy and the Disaster Management and, Preparedness Policy. A review of the above policy framework has been undertaken against the background of Uganda's strategic development plans which include Vision 2025, the Poverty Eradication Action Plan (PEAP), and the Plan for Modernization of Agriculture (PMA). Vision 2025 constitutes a strategic framework for Uganda's national development in the long-term. PEAP is Uganda's comprehensive development framework. The PMA is part of the broader policy of the government's strategy for the eradication of poverty. The PMA is aimed at contributing to the increasing incomes of the poor, raising farm productivity; increasing the share of the agricultural output that is marketed through modernizing farm management, reducing post-harvest losses, increasing added value, and creating farm and off-farm employment opportunities. This section critically analyses, the existing policy framework with respect to bottlenecks, impediments and enhancement of CDM implementation.

4.2.1 The Environment Policy

The overall policy goal of the Environment Policy is sustainable social and economic development which maintains or enhances environmental quality and resource productivity on a long-term basis that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The specific policy objectives of the

Environment Policy¹⁰⁷ are:

(i) to enhance the health and quality of life of all people in Uganda and promote longterm sustainable socio-economic development through sound environmental and natural resource management and use;

¹⁰⁷ See Ministry of Natural Resources of the Republic of Uganda; The National Environment Management Policy for Uganda, 1994

(ii) to integrate environmental concerns in all development policies, planning and activities at national, district and local levels with full participation of the people;

(iii) to conserve, preserve and restore ecosystems and maintain ecological processes and life support systems, especially conservation of national biological diversity;

(iv) to optimize resource use and achieve a sustainable level of resource consumption;

(v) to raise public awareness to understand and appreciate linkages between the environment and development; and

(vi) to ensure individual and community participation in environmental improvement activities.

Specifically in relation to climate change, the Environment Policy¹⁰⁸ underpins the importance of climate as a vital natural resource, necessary for socio-economic development. Climate's importance to agricultural production is underlined and the policy instrument notes that there is no comprehensive mechanism/strategy to contain climate change effects. However the Environment Policy sets out the following objective in relation to climate change: -

*"To monitor the climate and atmosphere of the country in order to better guide land use and economic development decisions, and better manage air pollution and greenhouse gas emissions".*¹⁰⁹

The Environment Policy sets out the following guiding principles to contain the climate change problem: -

(i) that climate is a vital natural resource which should be properly harnessed (or effects, mitigated) for socio-economic development;

(ii) that the utilization of the climatic and atmospheric information is critical in agriculture and the efficient management of the environment;

(iii) that resource users (particularly farmers) should be involved in the monitoring and dissemination of climatic information;

¹⁰⁸ Ibid ¹⁰⁹ Ibid (iv) that the promotion of international cooperation for smooth exchange of climatic information and control of trans-boundary atmospheric air pollution is important in the management of the resource; and,

(v) that access to climatic data/information should be guaranteed on terms determined by the relevant authority.

In light of the above Environment Policy framework in relation to climate change, it is observed that the Government of Uganda has an adequate and comprehensive framework to guide the implementation of climate change projects including CDM. Specifically with regard to CDM implementation, it is worth noting that the overall policy goal of the Environment Policy recognizes the significance of the concept of sustainable development, which is a key component/feature of CDM. Accordingly, it is noted that the existing environment policy framework is sufficient to provide for CDM implementation.

4.2.2 The Forestry Policy

It is necessary to review the Forestry Policy because land use, land-use change and forestry (LULUCF) activities (also known as carbon sinks) can provide a relatively costeffective way of combating climate change) either by increasing the removal of GHGs from the atmosphere (for instance by planting trees or managing forests), or by reducing emissions (for instance by curbing deforestation).¹¹⁰ The eligibility of LULUCF activities under the CDM is limited to afforestation and reforestation¹¹¹. Consequently, the review of the Forestry Policy will aim at determining whether there exists an adequate framework for the implementation of CDM projects, related to afforestation and reforestation initiatives in Uganda. The overall goal of the Forestry Policy¹¹² is to develop an integrated forest sector that achieves sustainable increases in the economic, social and environmental benefits from forests and trees by all the people of Uganda, especially the poor and vulnerable. The guiding principles of the Forestry Policy

¹¹⁰ See Article 3 of the Kyoto protocol

¹¹¹ See Decision 17/CP, on Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto protocol

¹¹² See Ministry of Water, and Environment of the Republic of Uganda; The Uganda Forestry Policy, 2001

include, inter alia, consistency with the national objectives and directive principles guiding sustainable development set out in the Constitution of the Republic of Uganda;¹¹³ management of Uganda's forests in order to meet the needs of the present generation without compromising the needs and rights of future generations; and that legislation should he developed to support the implementation of current and future international commitments that affect the forest sector. Policy Statement No.3 of the Forestry Policy is relevant to CDM implementation in so far as it provides for commercial forest plantations. The statement notes that the private sector will play the major role in developing and managing commercial forest plantations which will either be through large scale industrial plantations on government or private land or through small scale plantations on farms. The role of government will be to support and regulate this development.

The government will put in place a regulatory framework, which will create a positive investment climate to encourage private sector investment in commercial forest plantations. The government will, amongst other tasks, set out priority areas for the development of carbon storage plantations in different areas of Uganda.

It is submitted that the existing Forestry Policy provides an adequate and sufficient framework for the pursuit of massive human-induced afforestation and reforestation programmes relevant to CDM implementation. The new Forestry Policy is a fundamental departure from the old Forestry Policy that was inclined in favour of forests in protected areas; in which the public sector /government exercised a command, control and exclusionary style of management; in which the contribution of the forest reserve especially in the energy sector was undervalued and the management of Forestry was scattered over several uncoordinated government agencies and ministries; and in which farm forestry, commercial forest plantations and forests outside protected areas received little attention beyond the rhetoric in government pronouncements.¹¹⁴ The new Forestry

¹¹³ See Article xiii and Article xxvii of the National Objectives of the Constitution of the Republic of Uganda, 1995 regarding the protection of Natural Resources and Environment.

¹¹⁴ This Information Was Obtained From The Forest Sector Coordination Secretariat, Under The Ministry Of Water And Environment.
Policy sufficiently takes care of the previous short-comings in the forestry sector particularly in the context of CDM.

4.2.3 The Energy Policy

A review of the Energy Policy is necessary because the energy sector has been identified to have a great CDM potential especially with regard to priority areas such as:- end-use efficiency improvements in household, industrial, and service sector energy; power transmission systems; fuel substitution; decentralized renewable energy technologies; supply technologies; efficiency improvements for motor vehicles; switching to fuel systems with lower GHG emissions; and improved transport system efficiency.¹¹⁵

The development of Uganda's Energy Policy is in line with Article XXVII of the Directive Principles and National Objectives of the Constitution of the Republic of Uganda. The overall policy goal of the Energy Policy is to meet the energy needs of the Ugandan population for social and economic development in an environmentally sustainable manner. The broad objectives of the Energy Policy are to:

(i) to establish the availability, potential and demand of the various energy resources in the country;

(ii) to increase access to modem, affordable and reliable energy services as a contribution to poverty eradication;

(iii) to improve energy governance and administration;

(iv) to stimulate economic development; and

(v) to manage energy related environmental impacts.

The Energy Policy recognizes the necessity to establish an energy efficiency law and its main focus amongst others is:- to integrate the objective of environmental sustainability into all energy initiatives; development of an energy resource base and dissemination of key information; promotion of private participation and the development of competitive

¹¹⁵ See Ministry Of Agriculture, Animal Industry And Fisheries And The Ministry Of Finance, Planning And Economic Development Of The Republic Of Uganda, <u>Plan For Modernization Of Agriculture:</u> <u>Government Strategy And Operational Framework,</u> August 2000; See Also S.Odingo; <u>The Clean</u> <u>Development Mechanism In Africa</u>, Supra

markets in energy technology and services; and the development of positive linkages between the energy sector, poverty alleviation and economic growth.

Amongst others, the energy policy identifies the management of energy related environmental impact as one of its priority policy actions; and its strategic intervention is to negotiate for benefits accruing out of the Kyoto Protocol. Although information obtained from the Ministry of Energy and Mineral Development indicates that most of the energy projects under the supervision of the Ministry have an element of compliance with the Kyoto Protocol,¹¹⁶ it is submitted that apart from the Uganda West Nile Electrification Project,¹¹⁷ the CDM potential of most of other electricity generation projects has not been given adequate attention. The Energy Policy should pursue a more proactive and aggressive role to ensure that most of the electricity generation projects and other energy projects should aim at achieving emission reductions that can be sold in return for financial benefits to entities such as the Prototype Carbon Fund (PCF).

4.3 Review of the Legal and Regulatory Framework

4.3.1 National Environment ACT

The principal legislation governing the environment in Uganda is the National Environment Act. A review of the National Environment Act reveals that while it generally provides, for a comprehensive framework in relation to environment management, climate change related issues are not given any special consideration. Nevertheless, some of the sectors that are critical to climate change and in particular, the CDM are covered. Thus, in relation to forests which are considered critical to the CDM (because of their ability to act as carbon sinks, to facilitate the removal of greenhouse gases from the atmosphere), Section 46 of the National Environment Act generally provides that the National Environment Management Authority (NEMA) will issue guidelines and prescribe measures for the management of all forests and that all forests shall be managed in accordance with the principle of sustainable development. Section 40 (1) of the National Environment Act mandates the District Environment Committees to identify areas to be targeted for afforestation and reforestation, this is however,

¹¹⁶ See the Energy Policy; op cit (note 49) at page 59

¹¹⁷ See the World Bank Prototype Carbon Fund; op cit note 26

restricted to hilly and mountainous areas and does not therefore; adequately address deliberate massive human induced afforestation and reforestation initiatives as envisaged by Article 3(3) of the Kyoto Protocol. It is my opinion that under the National Environment Act, climate change issues are not given any special treatment, as opposed for instance, to the protection of the Ozone layer that is specifically covered by Section 51 of the National Environment Act.

4.3.2 The National Forestry and Tree Planting Act, 2003

The Government of Uganda introduced a new law to regulate the forestry industry,¹¹⁸ The National Forestry and Tree Planting Act¹¹⁹ 2003. The Act is a fundamental departure from the outdated Forest Act (which was repealed) in as far as it provides for a modern regulatory framework for the sustainable management of forests and also addresses some key issues relevant to CDM. The following key features of the Act are worth pointing out:

(i) it provides for the establishment of private forest plantations and declares that all forest produce on such a private plantation forest belongs to the owner of the plantation and that the owner is free to use the forest produce in any manner he may determine;¹²⁰

(ii) it provides that any person may enter into a contractual or other arrangement with the owner of an interest in a private forest for the right to harvest, purchase, or sale of all or any part of the forest produce in the private forest, and also provides for the registration of such a contractual interest;¹²¹

(iii) it provides for the intervention of the Government to extend technical services to persons involved in the development of private forests and forestry activities in general. Such assistance to be extended includes, the provision of information, training and advice on the management of forests, the establishment and maintenance of nurseries and other facilities necessary for seeds and plants; materials, financial assistance; and cooperation and liaising with other lead agencies in the management of forests and forest¹²² and

 ¹¹⁸ Under Decision 15/CP 7; Op Cit, Afforestation And Reforestation Projects Are Eligible CDM Projects
 ¹¹⁹ See National Forestry And Tree Planting Act No 8/2003

¹²⁰ Ibid section 22

¹²¹ Ibid section 23

¹²² Ibid section 26

(iv) it provides for the preparation of a National Forest Plan by the Government of Uganda which shall be the framework for the implementation of the forestry policy, other programmes by the Government and stakeholders in the forest sector.¹²³

In light of the fact that CDM is market based and encourages the participation of private entities, and organizations, the provisions in the new Forestry Act¹²⁴ for the commercial private exploitation and development of forests is important. This private element in forestry industry will foster the development of CDM because; with reduced government involvement comes along reduced bureaucratic tendencies thus leading to quick conclusion of CDM deals; with profit being the main motivation.

4.3.3 The Water Act

The Water Act is the principal legislation governing the use, protection and management of water resources and supply. A review of the Water Act is relevant because some of the potential CDM projects will involve the use of water resources. This is particularly true with respect to hydro-electricity projects which have a lot of room for technological improvements for the reduction of consumption of fossil fuels. Section 18(1) of the Water Act prohibits the construction or operation of works on water resources unless authority to do so has been given by the Director of Water Development. Since the Water Act restricts the construction of a water permit set out in Section 18 (5) of the Water Act, there should be included conditions relating to the CDM potential of those water projects, particularly those to be commenced in the electricity sector.

4.3.4 The Petroleum (Exploration and Production) Act

A review of the Petroleum (Exploration and Production) Act is necessary because the consumption of fossil fuels is an important source of GHG emissions. Section 19 (1) of the Petroleum (Exploration and Production) Act provides for the issue of a production license order for a production license to be issued, amongst other conditions, the investor must give particulars of the necessary measures that he intends to take for the protection of the Environment as set out under Section 20 (2) of the Act. While the

¹²³ Ibid section 49

¹²⁴ Ibid

production of petroleum products must be encouraged considering their importance in the advancement of industrialization, the production processes should ensure that they do not lead to uncontrolled emissions of GHGs into the atmosphere. Consequently, the responsible authorities should strictly enforce the conditions for the grant of a petroleum license relating to the protection of e environment.

4.3.5 The Mining Act, 2003

The Mining Act repeals the old Mining Act.¹²⁵ The Mining Act represents a fundamental departure from the old law in the following important respects:

(i) it provides for the taking of all necessary steps to ensure the prevention; and(ii) it provides for the submission by the investor of an environmental management plan

(ii) it provides for the submission by the investor of an environmental management plan indicating the type and quality of wastes to be generated from any exploration or mining operations and the method of its final disposal.

The reference to pollution of the environment obviously encompasses the emission of GHGs into the atmosphere. It is therefore, hoped that the above law binds investors into taking appropriate measures (including the use of environmentally benign technology) in the installation of their industrial establishments to minimize the emission of GHGs into the atmosphere. It also follows that CDM projects may be modeled along the lines of intervention in the minimg industry through the installation of environmentally benign technology that minimizes the emission of GHGs into the atmosphere. It emission of GHGs into the atmosphere. It minimizes the emission of GHGs into the installation of environmentally benign technology that minimizes the emission of GHGs into the atmosphere. It important to note that minimizes constitute a GHG source¹²⁶

4.3.6 The Electricity Act

The Electricity Act generally provides for the generation, transmission, distribution, sale and use of electricity and for the control and licensing of activities in the electricity sector. It is necessary to review the Electricity Act because electricity generation is listed as one of the sources of GHGs in Uganda.¹²⁷ Under the Electricity Act, the Electricity Regulatory Authority (ERA) is vested with the function of issuing licenses for the generation, transmission, distribution and sale of electricity. ERA is also vested with the

¹²⁵ See Mining Act Cap 248, Laws of Uganda, 1964

¹²⁶ Final Report on Sources and Sinks of Greenhouse Gases in Uganda; op cit

¹²⁷ As above

function of developing and enforcing performance standards for the generation; transmission; and distribution of electricity.¹²⁸ In the process of review of applications for the issue of licenses the generation; transmission; and sale of electricity, the ERA, amongst others, takes into consideration the need to protect the environment and to conserve the natural resources.¹²⁹ The above general provisions in the Electricity Act on the conservation of the environment may be used by the ERA to minimize GHGs emissions in electricity generation.

It is nevertheless, observed that the Electricity Act lacks an adequate and effective framework for the facilitation of CDM project activities. Such an adequate and effective framework would entail specific provisions in the Electricity Act that require, firstly, that the ERA while reviewing applications for the issue of licenses to take into consideration of the capacity of a given generation project to address climate change concerns. Secondly, an incentive regime under the Electricity Act can be set up with the sole purpose of encouraging electricity generation projects that are specifically designed to address climate change concerns. Such compliant generation could be eligible to derive some form of financial from for instance, a fund similar to the Rural Electrification Fund established under the Electricity Act.¹³⁰ This would lend encouragement to projects such as Uganda West Nile Electrification Project that has been said to be first ever CDM deal in Africa under which the Prototype Carbon Fund (PCF), a private-public partnership operated by the World Bank which will be purchasing carbon dioxide emission reductions for up to US\$ 3.9 million over 15 to 20 years. The Uganda West Nile Electrification Project will result in the replacement of GHGs emissions from highly inefficient diesel and petrol-fueled generators and engines in the districts of Arua and Nebbi in North Western Uganda.¹³¹ It is accordingly contended that the Electricity Act should be amended to incorporate frameworks specifically aimed at encouragement of implementation of CDM projects such as the above.

¹²⁸ See section 11 of the Electricity Act

¹²⁹ As above, section 38

¹³⁰ See section 65 of the Electricity Act.

¹³¹ See World Bank; News Release No: 2 2002/118/S –"Prototype Carbon – Fund (Pcf) Shows That Kyoto Protocol Works: Selling Emissions Make Marginal Projects Financially Attractive" (5/11/2001) Available At Http://www.Prototypecarbonfund.Org.

4.3.7 Income Tax Act, Cap 243 Laws of Uganda

The Income Tax Act is the principal legislation governing the taxation of income. The Act provides for a number of deductible expenses from income earned in order that such expenses do not form part of the chargeable income of the person. These deductions are applicable with respect, for instance, to the establishment of industrial buildings, scientific research expenditure, farming, and mineral exploration expenditures.¹³² While it is true that some of expenditures in investments in CDM projects may already qualify as deductible expenses, is nevertheless contended that CDM eligible projects are not given any special treatment. In order to encourage investments in CDM projects, it is suggested that the Income Tax Act be amended to specifically provide for the deduction of expenditures that may be incurred in given CDM investment project. For instance, in relation to electricity generation projects that encourage the use of diesel and petrol engines that emit less GHGs, it may be provided that expenses on the acquisition of such a category of engines should qualify as deductible expenses under the Income Tax Act.

4.3.8 The Investment Code, 1991

The Investment Code was initially meant to promote investment through incentives. In considering applications for an investment license under the Code, the Uganda Investment Authority is mandated to carry out an appraisal of the capacity of the proposed business enterprise to contribute to the following:-¹³³

(i) the generation of new earnings or savings of foreign exchange through exports, resource based import substitution or service activities;

- (ii) the utilization of local materials, supplies, and services;
- (iii) the creation of employment opportunities, in Uganda;
- (iv) the introduction of advanced technology or upgrading of indigenous technology; and
- (v) the contribution to locally or regionally balanced socio-economic development.

In light of the fact that one of the prerequisites of a given CDM project to quality as one, is its ability to contribute to sustainable development, potential CDM projects in Uganda

¹³² See Section 30, 33, 36 and 37 of the Income Tax Act, Cap 243 Laws of Uganda

¹³³ See section 13of the Investment Code

should be vigorously subjected to the above pre-conditions set out in the Investment Code as a project's satisfaction of the said pre-conditions would ensure its ability to contribute towards Uganda's sustainable development. In relation to CDM, the above pre-conditions set out in the Investment Code should be modified and in some instances, supplementary pre-conditions included on the list as follows:-

(i) the pre-condition relating to "the introduction of advanced technology or up-grading of indigenous technology" should be modified to provide for the introduction of climate friendly technology;

(ii) the ability of a given CDM project to contribute towards capacity building and information development should be included on the list; aid,

(iii) improved accessibility by Uganda to financial resources should he included on the list.

There exists a mechanism under the Investment Code under which enterprises (investors) may qualify for specified incentives upon satisfaction of the laid out conditions. One way of qualifying for these incentives is to satisfy three or more of the pre-conditions set out in the Investment Code.¹³⁴ It is suggested, that in relation to CDM projects, a list of core indicators for sustainable development should be identified and grouped together, such that upon the investor satisfying these conditions, he would qualify for such incentives. It is important to note that holders of certificates of incentives were previously entitled to benefit from common incentives under the Investment Code which included exemptions from corporation tax, withholding tax and tax on dividends. However, this provision in the Investment Code has since been repealed by the Income Tax Act.

4.3.9 The National Environment (Waste Management) Regulations, 1999

National Environment (Waste Management) Regulations, 1999 ("The Waste Regulations") apply to all categories of hazardous and non-hazardous waste, the storage and disposal of hazardous waste and their movement into and out of Uganda, and all waste disposal facilities, landfills, sanitary fills, and incinerators. Regulation 5 of the

¹³⁴ Ibid

Waste Regulations specifically provides for cleaner production methods and obliges all persons who own or control facilities which generate waste to adopt cleaner production methods namely; improvement of production processes, monitoring the product cycle from beginning to end and incorporation of environmental concerns in the design and disposal of a product.

Regulation 17 of the Waste Regulations obliges every person who operates a waste treatment plant or disposal site to take all necessary measures to prevent pollution from the site or plant. It's in argued, that the Waste Management Regulations comprehensively over the emission of all wastes including GHGs into the atmosphere. It is also worth pointing out that the Waste Regulations can be used to facilitate the implementation of CDM projects relating to waste management.

4.3.10 The Water Resources Regulations, 1998

The Water Resources Regulations, 1998¹³⁵ set out a comprehensive procedure for the grant of water permits provided for under the Water Statute, 1995. Regulation 6 of the Water Resources Regulations sets out the various factors to be taken into account in the consideration of an application for a water permit, and one of the factors to be considered is any adverse effect which the water facility under the water permit is likely to have on the environment as well as the need to protect the environment. The regulations provide for a framework through which the authorities can ensure that works relating to water resources incorporate climate change mitigation measures.

4.3.11 The National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2000

A review of the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2000 is necessary considering that Wetlands, River Banks Land Lake Shores are important carbon sinks for the absorption of GHGs from the atmosphere. A review of the objectives of the part of regulations dealing with wetlands confirms that wetlands can enhance as carbon sinks for GHGs and are therefore, critical to climate change mitigation measures. Regulation 4 of the Wetlands Regulations

¹³⁵ See the Water Resources Regulations, S.I No 33/1998

provides inter alia for the conservation and wise use of wetlands and their resources, to ensure that wetlands are protected as habitats for species of fauna and flora, to ensure the sustainable use of wetlands for ecological purposes for the common good of all citizens, and to minimize and control pollution. Regulation 28 of the River Banks and Lake Shores Regulations oblige every land owner or user of a river bank or lake shore to prevent and repair degraded river banks and lake shores through amongst other measures, agro-forestry and grassing. It is noted that the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations provide a framework for the enhancement of carbon sinks for the absorption of GHGs from the atmosphere.

4.4 Review of the Institutional Framework

The study identified the following ministries and government departments as being critical to CDM implementation;

4.4.1 The Department of Meteorology

The mission of the Department of Meteorology (DOM) under the ministry of Water and Environment is to maintain a well developed weather and climate monitoring system that provides necessary information and advisories in a cost effective manner in support of government policies for sustainable socio-economic development. The DOM is Uganda's focal point for the UNFCCC and plans are underway to;

(i) formulate and review of policies and programmes for the implementation of the UNFCCC and the Kyoto Protocol;

(ii) negotiation of purchase agreements for CDM projects;

(iii) to raise the level of awareness at the national level regarding UNFCCC and the Kyoto Protocol;

(iv) checking, verifying CDM baseline calculations and developing CDM operational guidelines for the approval of projects;

(v) to co-ordinate the implementation of the UNFCCC and the Kyoto Protocol;

(vi) to maintain a register of CDM projects and keep track of the Certified Emission Reduction Units (CERs); and,

(vii) to identify capacity building needs and mobilize resources to address them

But the work of the Department of Meteorology has not been realized in light of the implementation of the CDM. There has not been actual climate monitoring system and less information has been provided and less co-ordination and the implementation of the UNFCCC and the Kyoto Protocol. No register of CDM projects to keep track of the Certified Emission Reduction Units (CERs) has been realized as evidenced by the changing weather patterns and of course the department of meteorology has not updated the people, hence the people have ended up planting crops at wrong times and hence low or no yields due to drought and heavy rains.

4.4.1 (a) Lack of adequate Funding to the Department of Meteorology

The Department of Meteorology is inadequately funded and facilitated. It is also important to note that under the Kyoto Protocol, for a country to participate in CDM, there must be in existence; a Designated National Authority (DNA). The DNA is an institution that would be responsible for coordinating all CDM related issues.

4.4.2 National Environment Management Authority (NEMA)

NEMA's mandate is to co-ordinate, monitor and supervise environmental management in the country. One of the key functions of NEMA is to ensure that investment projects undertake EIA, and this certainly includes CDM projects. NEMA is also charged with the duty of reviewing such EIAs and has the discretion to approve an EIA with conditions, refer back the project for additional information/verification of facts, approve part of the project or reject the entire project. NEMA's role with regard to CDM will be to ensure that CDM project investments comply with the existing environmental regulations. This is especially critical in view of the fact that some of the CDM projects such as massive afforestation and reforestation projects will involve displacement of people and have wide-ranging socioeconomic effects on the adjacent societies.

4.4.3 The Uganda Investment Authority

Considering that CDM implementation will be greatly influenced by the operation of free market forces, concerted effort will need to be made with regard to the attraction of CDM projects in the country. In Uganda, the Uganda Investment Authority (UIA) is the body charged with the responsibility of creating favourable conditions for investment in

the country. In view of the highly technical nature of CDM, the UIA already took steps to enhance its capabilities to intervene in the CDM market. In this respect, a CDM desk at UIA has been set up which will be directly responsible for CDM projects and other related activities, in this respect, the CDM desk organized a CDM workshop in May, 2003 to sensitize the private sector on CDM implementation. In addition, the CDM desk also requested the assistance of the World Bank to prepare CDM project profiles and other guide books to help ordinary people understand CDM concepts.¹³⁶ However, the UIA has indicated that it will be considering CDM projects as any other investment, without giving them any special treatment. There is a problem with the UIA approach and instead of advocating for a much more proactive role of UIA whereby, in light of the technical nature of CDM projects, and the high financial potential involved, special treatment should be accorded to CDM projects. Accordingly, it is suggested that the CDM desk at UIA should be manned by quantified personnel who possess specialized knowledge and skills in CDM.

4.4.4 Ministry of Water and Environment

The mandate of the Ministry is to promote and ensure the rational sustainable utilization and development; and the effective management and safeguard of land and water resources and the environment for social and economic welfare and development as well as regional and international peace, including the utilization of weather and climate information for sustainable development. The key functions of the Ministry include the following:

(i) planning, policy formulation and reviewing of national policies for water, and environment sectors;

(ii) setting standards for activities in the water, and environment sectors:

(iii) providing technical guidance and back-stopping to local governments;

(iv) inspecting, monitoring and evaluation of water, lands and environment activities of local governments, and private sector and offering technical advice, support supervision and training to them; and

(v) coordinating government policies in the sectors of water and environment activities and projects as they apply to local governments.

1

¹³⁶ Information obtained from Uganda Investment Authority

4.4.5 Ministry of Energy and Mineral Development

The mandate of the Ministry of Energy and Mineral Development is to establish, promote the development, strategically manage and safeguard the rational and sustainable exploitation and utilization of energy and mineral resources for social and economic development. The key functions of the Ministry are:

(i) to acquire, process and interpret technical data in order to establish the energy and mineral potential of the country;

(ii) to create an enabling environment in order to attract investment in the V development, provision of energy and mineral resources;

(iii) to inspect, regulate, monitor and evaluate activities of the private companies in energy and mineral sectors so that resources are developed, exploited and issued in rational and sustainable bases; and

(vi) to provide policy guidance and ensure effective development, exploitation and management of energy and mineral resources.

4.5 The Potential of CDM Projects in Uganda

Available scientific data indicates that CDM projects are possible in the energy, agricultural/forestry, transport, and industrial sectors. It should be noted that the above sectors have all been identified as important sources of greenhouse gases in Uganda. With respect to the energy sector, priority areas of CDM importance in developing countries include, end-use efficiency improvements in house hold, industrial and service sector energy; power transmission systems; fuel substitution and renewable energy technologies such as solar energy.¹³⁷ In short, the emphasis is on the shift from the traditional sources of energy to alternative sources of energy.

In Uganda, the possibility of developing CDM projects in the electricity sector has already been attempted through the implementation of the Uganda West Nile Electrification Project.¹³⁸ The above project is being funded by the Prototype Carbon Fund (PCF), a private-public partnership operated by the World Bank. The USS 20 million project involves the construction of two small hydro-power stations, efficient

¹³⁷ See Final Report on Sources and Sinks of Greenhouse Gases in Uganda; supra

¹³⁸ See "World Bank Press Release on Prototype Carbon Fund (PCF)"; supra

diesel backup facilities, and the rehabilitation of the min-grid in the West Nile region of Uganda. Under this project, the PCF will be purchasing carbon dioxide emission reductions for up to US S 3.9 million over 15 to 20 years and is the first PCF CDM project negotiated in Africa. This project is part of the Government of Uganda's Energy for Rural Transformation (ERT) scheme, which is supported by the World Bank and various bilateral partners. The people of the Uganda West Nile region currently rely on the use of petroleum to fuel very inefficient and often small generators and engines which can have significant negative effects on the local environment. With the above project, the West Nile region is likely to benefit from a much more reliable source of energy supply. In this respect, the above project demonstrates how the CDM can both lead to significant emission reductions while assisting developing countries in building a more environmentally and economically sustainable energy future.¹³⁹ The above CDM project demonstrates that CDM can be a real economic and development opportunity for the African continent and other developing countries in general.

With respect to the agricultural/forest sector, CDM projects are limited to afforestation and reforestation projects like the current campaign of cutting one tree and planting ten trees, a campaign by the ministry of water and Environment under the National Forestry Department.¹⁴⁰ It is generally anticipated, that CDM projects involving afforestation and reforestation can be established in developing countries like Uganda at a very low cost to the investing country and with minimum or no technology transfer while at the same time achieving large emissions reductions. In Uganda, a reforestation project is already being implemented by UWA Face Project in the Mt. Elgon National Park and Kibaale National park. The UWA — Face Project is a joint venture between Uganda National Parks and Face Foundation of Holland. Face Foundation is financed by the electricity generating companies Holland. Under the above project, Face Foundation is funding a substantial part of the financing of the forest, and in return it gets carbon dioxide sequestration and offset in the contract areas of Mt. Elgon and Kibaale National Parks during the term of 99 years (1994-2093).

¹³⁹ Ibid

¹⁴⁰ See Principles of the CDM, supra

Regarding the transportation sector, it is expected that CDM projects will take the form of providing sustainable non-emitting or less-emitting transport systems for African cities.¹⁴¹ Thus, CDM projects may involve the implementation of mass transit systems such as trolley buses, gas turbine, and light rail transit; development of alternatives to the use of motorized transport whereby the use of transport systems such as bicycles can be encouraged through for instance, the reduction of tax on the importation of bicycles and other non-motorized transport systems; and encouragement of the use of alternative fuels such as natural gas and hydrogen in public transportation systems.

Statistical data in Uganda shows that the transport sector is the major consumer of fossil fuels, accounting for about 75% of the fossil fuel import bill. It is estimated that there are approximately 200,000 vehicles and the estimated average growth rate is 10,000 vehicles per year.¹⁴² Possible CDM projects may intervene in the transportation sector to ensure that the huge growth potential is shaped in a manner that leads to GHG emission reductions as well as achieving the sustainable development objective. In addition, the industrial sector presents enormous CDM investment opportunities. It has been suggested that CDM projects in the industrial sector will generally relate to cement production; aluminum, iron and steel production; pulp and paper production; electricity generation; brick-making; and food production.¹⁴³

4.6 The Role of the Private Sector in CDM Projects

CDM is an essentially market based mechanism where market forces will determine investor participation in a given CDM project or the allocation of CDM projects in a given country. This suggests that for private sector investors to participate there has to be a profit motive. The importance of the private sector participation lies in the fact that most of the activities that have a CDM potential have a direct link with the private sector. It is important to note that in developing countries like Uganda, there is a deliberate government effort to encourage liberalization of the market and private sector

 ¹⁴¹ See Richard S. Odingo, op cit at page 89-103
 ¹⁴² See Uganda's Initial National Communication, op cit

¹⁴³ See Richard S. Odingo, Supra at page 89-103

participation.¹⁴⁴ The result is that most of the industrial establishments and other sectors critical to CDM are in the hands of the private sector. In order to promote private sector participation, the government should create a conducive environment for their involvement. Thus, institutional and bureaucratic obstacles should be eliminated and properly functioning systems should be set up to co-ordinate CDM activities.

It is submitted that in order to promote effective private sector participation, the following aspects should be given special attention:-¹⁴⁵ criteria and procedures for project approval by the Uganda Investment Authority before a project is undertaken to assess its would be impacts to the environment, project monitoring let say by the MEMA under its Environmental Impact Assessment Programme (EIA), certification of emissions reduction and tracking; risk elements in CDM projects; management aspects of CDM; administration expenses in CDM projects; financing of CDM projects; institutional structure and governance of CDM; equity transparency, sustainability and additionality issues; capacity building needs of CDM; and, baselines methodology and issues on sustainable development.

The indirect conditionalities of private sector participation in the CDM have been aptly put forward by **Richard S. Odingo** who has observed thus:

"Participation by the private sector in CDM will mean that the "rules of the game" will be set by the normal market and financial requirements. To that extent, investors will be looking for good projects, accessibility of finance for projects, security for investments, transparency at all levels in both government and industry, clear and unambiguous selection criteria, and clear rules for partnership with government in industry..."¹⁴⁶

4.7 The Socio-Economic Aspects of CDM Implementation

Implementation of CDM Projects is likely to have wide-ranging socio-economic consequences which should be carefully analyzed beforehand. For instance, CDM

¹⁴⁴ Warren Nyamugasira and Rick Rowden; <u>"Poverty Reduction Strategies and Coherency of Loan</u> <u>Conditions:</u> The Case of Uganda"; 2002

¹⁴⁵ See Richard S. Odingo, op cit at page 43-48

¹⁴⁶ See Richard S. Odingo, Supra at page 75

forestry projects are likely to encounter significant obstacles relating to the land tenure systems and the possible displacement of populations as a result of massive human induced afforestation and reforestation projects as envisaged under the Kyoto Protocol. A key feature of consideration will therefore, be how to balance the ecological and/or environmental, economic and social aspects/issues emanating from CDM implementation.¹⁴⁷

4.8 Constraints in CDM Implementation

CDM implementation in Uganda is likely to encounter serious difficulties which may include the following:

Lack of an institutional framework through which CDM implementation can be coordinated. Presently, the Department of Meteorology of the Ministry of Water, Lands and Environment is the co-coordinating agency for climate change activities including the CDM. However, it does not meet the criteria for a Designated National Authority as envisaged by the principles that provide for the operationalisation of the CDM;

Lack of capacity to implement CDM projects. This mainly relates to the lack of trained and qualified personnel to handle CDM implementation projects in view of its highly technical nature. For instance, Uganda has only recently in October 2002, been able to submit its first National Communication to the COP although it should have done so much earlier in 1997 (i.e. within three years from 21st March 1994 (entry into force of UNFCCC);

Lack of adequate funding for CDM projects. Uganda will mainly rely on donor funding to implement CDM projects. This will adversely affect Uganda's ability to strategically position itself to attract CDM investment in pioneer projects. This means that Uganda will essentially have to wait for pioneer CDM projects to be commenced in other parts of the world in order to borrow lessons from such projects.

¹⁴⁷ See Intergovernmental Panel on Climate Change (IPCC); Climate Change 2001: Mitigation-Technical summary at page 24

4.9 Conclusion

CDM has a significant potential to attract investment opportunities to the territories of Developing countries such as Uganda thus leading to sustainable development as well as GHG emission reductions. In view of the fact that CDM is market based, the dynamics of tapping development benefits emanating from the CDM will largely depend on the ability of the country to put in place a conducive economic environment to attract CDM investments. It is the view of this study that Uganda does not have a comprehensive and complete legal, regulatory, policy and institutional framework for the attraction of massive CDM investments into the country. On the other hand, it is also worthwhile to note that studies are underway to pave way for the development of the above framework including the establishment of a Designated National Authority (that will be responsible for co-coordinating CDM investments). While developing countries such as Uganda should embrace CDM projects because of their sustainable development benefits, it is also important for them to insist that developed countries should take the lead in combating the climate change problem within their own countries considering that the industrial revolution in those countries is largely responsible for the current high levels of GHG emissions.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview and Approach

In formulating the conclusions and recommendations in this Chapter, the researcher has had regard to the major constraints to CDM implementation highlighted in Chapter Four. The findings obtained have been taken into account by the researcher in the formulation of the conclusions and recommendations set out in this Chapter. The conclusions revolve around the major objective of the study which has been an evaluation of the relevance of the UNFCCC and its Kyoto Protocol and the Clean Development Mechanism provided for under the Kyoto Protocol to a developing country like Uganda. The recommendations relate to the suitability of Uganda's legal, regulatory, policy, and institutional framework to CDM implementation.

5.2 Conclusions

The major finding of the study is that the UNFCCC and its Kyoto Protocol is of significant relevance to a developing country like Uganda. Besides the legal obligation incumbent upon Uganda to be part of the global efforts to combat climate change considering that Uganda has ratified the UNFCCC, the study finds that Uganda stands to derive a number of development benefits including technology transfer, financial assistance, technical assistance, and the general inflow of investments from developed countries, resulting from Uganda's active involvement in the implementation of the UNFCCC and its Kyoto Protocol.

Specifically with regard to the CDM, the study finds that considering that the major objective of CDM is to assist developed countries (Annex I countries) to meet their GI-IG emissions reduction commitments, and to assist developing countries to achieve sustainable development, the CDM could be an avenue through which Uganda can be assisted to achieve its development goals set out in the PEAP, the PMA, and Vision 2025. The major impediment to CDM implementation in Uganda is the lack of a conducive environment to facilitate CDM project investments. The study has found that:—

(i) Uganda lacks a comprehensive policy framework for tackling the climate change problem (including CDM investments). The available relevant policy is scattered over various policy instruments and does not comprehensively address the most critical relevant climate change issues;

(ii) Lack of a legal and regulatory framework to tackle the climate change problem and to facilitate CDM investments. Uganda does not have a defined and specific legislation aimed at climate change which constitutes a major bottleneck to the full realization of opportunities emerging from the UNFCCC and its Kyoto Protocol;

(iii) Lack of an institutional framework to facilitate CDM investments and to generally co-ordinate climate change efforts. In this respect, it is important to note that climate change issues are currently coordinated by the Department of Meteorology of the Ministry of Water, and Environment, which Department is also generally responsible for other weather and climate issues. The study also found that the Department of Meteorology is inadequately funded and facilitated. It is also important to note that under the Kyoto Protocol, for a country to participate in CDM, there must be in existence; a Designated National Authority (DNA). The DNA is an institution that would be responsible for coordinating all CDM related issues. Presently, Uganda does not have a DNA, and this means that as of now, Uganda cannot effectively participate in the CDM. However, on a positive note, the study found that Government efforts towards the establishment of a National Climate Change Secretariat, that will be Uganda's DNA are in advanced stages which will enable Uganda to fully participate in the CDM;

(vi) Lack of capacity to implement CDM. Although, there have been some Government efforts towards building capacity to implement CDM, the general view of the study is that these efforts have not had the desired impact. The research discovered that NEMA, the principal body responsible for the sustainable management of the environment in Uganda, is simply not actively involved in CDM / climate change issues. Information that the researcher obtained from UIA also indicated that UIA, the principal investment body in Uganda intends to treat CDM investments as any other investment. In view of the highly technical nature of CDM /climate change issues, it is the humble view of this

study that UIA should accord special treatment to CDM investments. Information obtained by the researcher from PSFU also showed that apart from participation in two CDM workshops in June/July 2001, and August 2002, the PSFU is generally not pursuing an aggressive policy in the CDM market and yet the successful functioning of the CDM has a lot to do with private sector involvement and participation. Uganda's inadequate capacity to implement the UNFCCC and its Kyoto Protocol is also clearly demonstrated by its late submission of its Initial National Communication to the COP in October, 2002 and yet it should have submitted the same in 1997 (i.e. within three years from 21st March 1994 entry into force of the UNFCCC); and

(v) The study also found that Uganda's ability to realize benefits arising from CDM implementation will be adversely affected by the lack of funds to implement CDM projects. The study discovered that under the CDM, it is possible for a country like Uganda to initiate CDM investments and thereafter sell carbon credits to Annex I countries that are subject to specific emissions reduction commitments. Uganda's ability to undertake these investments will be negatively affected because of the lack of funds to implement them. In this respect, it is important to note that the only CDM project currently being implemented in Uganda (and the only CDM deal in Africa), the Uganda West Nile Electrification Project has been possible due to World Bank financing under the Prototype Carbon Fund.

Finally, the researcher notes that while Uganda should aggressively pursue policies aimed at the full realization of the sustainable development objective of CDM, it should carefully watch out for the negative aspects that may come along with CDM implementation. It is possible that developed countries are likely to emphasize implementation of CDM projects in countries such as Uganda in order to achieve GHG emissions reductions because it is less costly to do so in countries such as Uganda, than it is in their own countries. This is because developing countries tend to accept everything from developed countries in exchange for donations like emissions trading at the cost of the environment. In the rush to encourage these investments, it is highly probable that firstly, the sustainable development function of CDM might be overlooked, and secondly that the developed countries (Annex I countries) might ignore taking domestic action in their own countries to combat climate change, and instead emphasize action in developing countries such as Uganda. Considering that climate change mitigation measures involve the discouragement of the use of carbon emitting fossil fuels (which fossil fuels are necessary for rapid industrialization), the above trend is likely to witness reduced industrial development progress in developing countries like Uganda while that of the developed countries remains unaffected. The results of the above trend will be the widening of the development gap between developed and developing countries. The researcher particularly notes the rejection of the US to ratify the Kyoto Protocol (the US is the world's largest carbon emitter) as a demonstration of double standards on the part of the developed world as far as global efforts to tackle the climate change problem is concerned.

5.3 Recommendations

The researcher wishes to make the following recommendations in order to enhance Uganda's capacity to tap opportunities emerging from the Kyoto Protocol to the UNFCCC, in particular the CDM:

(i) Efforts by Government aimed at the establishment of the National Climate Change Secretariat that will be Uganda's DNA should be stepped up and the establishment of this authority concluded as soon as possible to facilitate the participation of Uganda in CDM;

(ii) The Government should seriously consider the introduction of specific legislation aimed at the climate change problem and CDM implementation which is currently unavailable in the country.

(iii) The Government should consider the introduction of a comprehensive policy instrument specifically aimed at the climate change problem and CDM investments. Currently, the existing policy framework is scattered over various policy instruments. It is the researcher's opinion that a concrete policy instrument specifically targeting climate change should be formulated, just like it has been done in other countries by the formulation of the National Greenhouse Strategy;

(iv) The Government should step up both human and institutional capacity building efforts in all the government bodies that will be involved in CDM implementation. This capacity can be in form of sensitization of the masses about the dangers of global warming and empowering the masses with some funding to enable them afford to buy tree seedlings for purposes of enhancing the afforestation currently on going. Even formation of institutional association aimed at spear heading the tree planting campaign would go a long way in enhancing the CDM project. The rationale for this recommendation is that CDM is a highly technical field that can only be understood and appreciated by personnel with specialized knowledge and skills. It is the researcher's view that the Department of Meteorology, NEMA, PSFU, UIA UMA and the proposed National Climate Change Secretariat, be targeted for this purpose;

(v) The Government should consider establishment of a CDM fund to specifically provide financial assistance to CDM project activities. In view of Uganda's low financial capabilities, it is suggested that Uganda should lobby developed countries to contribute towards this CDM fund through financial bodies established under the Kyoto Protocol, such as the GEF, the Special Climate Change Fund and the Least Developed Countries Fund; and

(vi) The Government should consider the promotion of the use of economic activities like the planting of many trees for economic gains like pine trees in order reduce on global warming so as to facilitate the implementation of the UNFCCC and the Kyoto Protocol. These economic instruments could involve the extension of subsides to CDM project investments and the adjustment of the tax regime by the amendment of the Income Tax Act (just like these measures are being promoted in Australia, Republic of Korea and Zimbabwe) among others.

(vii) Carrying out research in agricultural and forestry practices, watershed management, land and water conservation, measures to combat desertification and protect biodiversity may go a long way to reduce the effect of climate change. These efforts take on new relevance in light of climate change. Such research can be done into the conservation of forest and agricultural sinks, which absorb carbon dioxide and provide some protection against drought, flooding, and erosion.

(viii)Approaches that reflect community needs and policy are relevant. There should be promotion of community-based management of natural resources, such as watersheds, forests, fish stocks, and pasture lands. This helps to ensure that affected communities are at the centre of any solutions put forward.

(ix) The Kyoto Protocol on Climate Change should establish the Clean Development Mechanism (CDM) as a process for identifying projects that reduce greenhouse gases in the atmosphere, such as investments in reforestation or conversion of a power plant from coal to natural gas. The CDM thus need to provide a means by which developed countries can fulfill their reduction targets in part by promoting cleaner development options in developing countries.

(x) As climate change threatens to increase drought and desertification in some regions, the need to conserve water becomes more urgent. Communities need to cope up for millennia through extremes of flood and drought by cooperatively managing shared natural resources, and by cultivating a variety of robust, indigenous crop types that can survive a range of conditions. Knowledge and use of diverse plant types — either planted or foraged — could be a key to survival as climate extremes widen.

(xi) Further research is needed on quantification of the potential of delivering renewable fuels for household consumption. Examples of these are ethanol, plant oils for stoves and biogas. It is clear that the production and use of these in rural areas could have significant rural development multiplier effects in terms of employment and wealth creation, as well as foreign exchange savings implication for the nation, making them attractive CDM projects for Uganda.

(xii) Some interventions focusing on lighting (replacing incandescent bulbs with CFLs; more efficient practices) should be encouraged. More energy is used in the residential sector for cooking, making efficient wood or coal stoves more attractive than inefficient models. Fuel switching for cooking might involve moving from electric hot plates to gas or paraffin cooking. Water is heated with electricity in most middle and upper-income homes, but with multiple fuels in typical low-income households. In both cases, emissions may be reduced by introducing solar water heaters (simple or hybrid). Energy can be saved by insulating hot water geysers, and by efficient use (e.g. by changing time of use). To improve space heating, a range of passive solar methods are possible (e.g. insulation, better ceilings, orientation, etc) or switching for active heating from electricity to gas.

BIBLIOGRAPHY

(a) BOOKS

Agarwal, A and Narain, S; *Global Warming in an Unequal World*: A Case of Environmental Colonialism; Centre for Science and Environment, New Delhi, 1991.

- Bazzaz, F & Wo Sombroek; *Global Climate Change and Agricultural Production* New York, John Wily and Sons, 1996.
- Biagini, B (ed); Confronting Climate Change. Economic Priorities and Climate Protection in Developing Nations, Washington D.C, National Environment Trust, 2000.
- Brown, P; Climate, Biodiversity and Forests: Issues and Opportunities Emerging from the Kyoto Protocol; World Resources Institute and Forest Frontiers Initiative in Collaboration with IUCN (undated).
- Brown, P. Cabarle, B, and Livermash, R; Carbon Counts: Estimating Climate Change Mitigation in Forestry Projects, World Resources Institute, Washington DC, 1997.
- Brinkerhiff, D and Kamugasha, B; Uganda and the National Environment Action Plan Focusing on Implementation, 1998.
- Brownlie, I; Basic Documents in International Law, 4th Edition, Clarendon Press, Oxford, 1995
- Climate Change Secretariat; A Guide to the Climate Change Convention and Its Kyoto Protocol; Germany, Bonn, 2002, published at: http://unfccc.int/rcsource/convkp html.
 Goldemberg, J (ed); Issues and Options. The Clean Development Mechanism, New York, United Nations Development Programme, 2000.
- Goldembeg, J and Reid, W (eds); Promoting Development while Limiting Greenhouse Gas Emissions: Trends and Baselines: New York, UNDP and World Resources Institute, 1999.

Getulio Vargas Foundation; The Clean Development Mechanism (CDM). A Brazilian Implementation Guide, December 2002.

Intergovernmental Panel on Climate Change; *The Regional Impacts of Climate Change* — Africa, published on http://www/grida.no/clirnate/ipcc/regional (visited on 30th July 2002).

- Intergovernmental Panel on Climate Change/World Meteorological Organization/United Nations Environment Programme: Preliminary Guidelines, for Assessing Impacts of climate Change, 1992.
- International Petroleum Industry Environmental Conservation Association / United Nations Environment Programme; Climate Change and Energy Efficiency in industry, London, 1991.
- Jackson, J.H; The World Trading System: Law and Policy of International Economic Relations, 2nd Edition, Cambridge, Massachusetts, London, England, 1997.
- Maunder, W.J; The Uncertainty Business: Risks and Opportunities in Weather and Climate, Methuen, London & New York, 1986.
- Matsuo, N; Key Elements of the Kyoto Protocol and Prospects for Emissions Trading: Institute for Global Environmental Studies, Japan 1998.
- Ntanbirweki J.; *Enforcement of Environmental Legislation in Zambia*, Consultancy Report, United Nations Environment Programme, 1994.
- Petsonk, A; The Kyoto Protocol and the WTO: Integrating Greenhouse Gas Emissions Allowance Trading into the Global Marketplace, Duke Environmental law and Policy, 1999
- Royal Society of New Zealand; Climate Change in New Zealand, 1988.

Rosenzweig, R et.al; *The Emerging International Greenhouse Gas Market*, March, 2002, Pew Center on Global Climate Change published at http://www.pewclimate.org.

Rosales, J and Pronove, G; *A Layperson's Guide to the Clean Development Mechanism.' The Rules from Marrakesh;* United Nations Conference on Trade and Development and the Earth Council on Carbon Market Programme, July 2002.

Ryan, P et al; *Transportation in Developing Countries; Greenhouse Gas Scenarios for Chile*, August 2002, Pew Center on Global Climate Change published at: http://www.pewclimate.org/projects/transporation-chile.pdf.

Serageldin, I and Sfeir — Younis, A (Eds); *Effective Financing of Environmental* Sustainable Development; Proceedings of the Third Annual World Bank Conference on Environmentally Sustainable Development held at the National Academy of Sciences; The World Bank, Washington D.C, First Printing 1996.

Serageldin and Brown, J.M (eds); Servicing Innovative Financing of Environmentally Sustainable Development; The Earth Council and the World Bank, Washington D.C,1997

Stewart, R; The Clean Development Mechanism: Building International Public Private Partnerships Under the Kyoto Protocol, Technical Financial and Institutional Issues; United Nations Conference on Trade and Development (UNCTAD), United Nations, New York and Geneva, 2000.

Tukahirwa, E; Environmental and Natural Resources Management Policy and Law: Issues and Options, 1992 Kampala Uganda.

United Nations Development Programme/United Nations Environment Programme! The World Bank; The Incremental Cost of Climate Change Mitigation Projects, 1993.

United Nations Environment Programme; *The Impact of Climate Change*, 1993. United Nations Environment Programme/ The Beijer Institute; *The Full Range of Responses to Anticipated Climate Change* April 1989.

United Nations Conference on Trade and Development; *A Pilot Greenhouse Gas Trading System: The Legal Issues*, UNCTAD!GS/GFSB/Misc.2 (Geneva: United Nations, 1996) United Nations Conference on Trade and Development (UNCTAD); *Domestic Climate Change Policies and the WTO*, August 2002.

World Bank; Building a Sustainable Future. The Africa Region Environment Strategy; Washington, D.C. June, 2002.

(b) ARTICLES

- Ackersman D; "Global Climate Change: Selected Legal Questions About the Kyoto Protocol:" CRS Report for Congress, March 29, 2001
- Ahn, D; "Environmental Disputes in the GATT/WTO: Before and After the US Shrimp Case": Michigan Journal of International Law, Vol. 20, 1999
- Assuncao, L; "The Buenos Aires Tango: What Trade Related Consequences? Between Trade and Sustainable Development", International Center for Trade and Development, Geneva, 1998
- Assuncao, L; "The Climate Change Convention and Trade Regimes;" Institute of Advanced Studies, United Nations University, Tokyo, 2000
- Assuncao, L and Zhong, X, Z; "Domestic Climate Change Policies and the WTO;" United Nations Conference on Trade and Development, Discussion Papers Series, August, 2002 V

Austin, Duncan and Faeth. P; "How Much Sustainable Development Can We Expect from the Clean Development Mechanism?" World Resources Institute; published at: http: //www.wri.org/cdrn/cdm—note.html.

Aukland. L, Pedro. M, et.al "Laying the Foundations for Clean Development Mechanism: Preparing the Land Use Sector: A Quick Guide to the Clean Development Mechanism," March, 2002 published at: htp://www.cdmcapacity.org

- Baumert, Kevin, A. and Petkova, E; "How will the Clean Development Ensure Transparency, Public Engagement, and Accountability?" World Resources institute. Available at: http://www.wri.org/cdm/cdm-note2.himl
- Baumert, Kevin, A et.al; "Designing the Clean Development to Meet the Needs of a Broad Range of Interests;" World Resources Institute, Published at: http://www.wri .org/cdm/cdm-note 2 .html

Baurnert, Kevin and Nancy Kete; "Designing the Clean Development Mechanism: Operational and Institutional Issues;" World Resources Institute, Published at http://www/wri.org/pdf/oecd.cdm.pdf.

Barret, Scott; "Trade Implications of Environmental Taxes;" Paper Prepared for the Environment Directorate of the Organisation of Economic Cooperation and Development, Paris, February, 1995

Bernstein, P.M. Montgomery, W.D and Rutherford T.F; "Global Impacts of the Kyoto Agreements; Results from the MS — MRT Model;" Resource and Energy Economics, Vol. 21

Burhenne, A; "Environmental Policy and Law;' in Thibodean, F.R and Herman, H (eds); Sustaining Tomorrow, A Strategy for the World Conservation and Development (undated and unpublished). Burhenne, G and Cyrid de Klemn, et al; "Environmental Law Progress and Problems," I.U.C.N Environmental Law Centre, Bonn, Germany

- Cameron, J and Buck, M; "International Trade Law and Green Procurement Initiatives," Prepared for International Institute for Sustainable Development at, Winnipeg, Manitoba, Canada. 1998
- Climate Technology Initiative (CTI); "Enhancing Markets for Climate Friendly Technologies; Leadership; Through Government Purchasing Strategies;" International Energy Agency, Paris, 1998, available at http://www/climatetech.net/pdf/procure.pdt.

Costey, A and Cameron, J; "Trade Implications of the Kyoto Protocol", International Institute for Sustainable Development, Winnipeg, Manitoba; Canada, 1999

- Chayes, A and Chayes, A.H; "Adjustment and Compliance Process in International Regulatory Regimes"; in Mathews, J.T; Preserving the Global Environment: The Challenge of Shared Leadership; W.W Norton & Company, New York, London, 1991.
- Dudek, D.J; "Cutting the Cost of Environmental Policy: Lessons from Business Response to CFC Regulation;" AMBIO, A Journal of the Human Environment, Vol. 9 No. 6 7, October, 1990.
- Dwight, K and Walter, S.M; "Substituting Pollution Taxation for General Taxation;" Journal of Environmental Economics and Management. December 1986.
- Drijer and Zinderwijk, A.B; "Incentives for Conservation and Environment Management in Developing Countries," 1991.
- De Canio, Stephen, J, Richard, B.H et al; "New Directions in Economics and Integrated Assessment of Global Climate Change;" Pew Centre on Global Climate Change, Washington D.C, October, 2000.

Engenhofer Christian and Cornille Jan; "How the EU Can Review the Kyoto Protocol"?" CEPS, 26th March 2001.

Environmental Law Institute; "Practical Approaches to Implementing Environmental Law; Getting from Here to There"; Washington D.C February, 1993.

- Gwagc, P.M; "An Overview of the United Nations Framework Convention on Climate Change" (Undated and Unpublished).
- Gwage, P.M.; "Preparation of Uganda's Initial National Communication to the United Nations Framework Convention on Climate Change: Constraints and Difficulties," Paper Presented to the CGE Consultative workshop held at Innassau, Bahamas, 8th - 10th August, 2002 Department of Meteorology Ministry of Water, Lands and Environment, Kampala, Uganda.
- Goldberg, D; "Responsibility for Non-Compliance Under the Kyoto Protocol's Mechanisms for Co-operative Implementation;" Centre for International Environmental Law, Washington D.C, USA, 1998.
- Greenpeace International; "Making the Clean Development Mechanism Clean and Green: Greenpeace Position Paper," Fourth Conference of the Parties to the United Nations Framework Convention on Climate Change, November 2 13, 1988 Buenos Aires, Argentina.
- Gaines, S.E; *"Taking Responsibility for Transboundary Environmental Effects:*" in Hastings International and Comparative Law Review, Vol. 14 Symposium Issue, 1991.
- Goodland, R.J.A; "The World Bank's Environmental Assessment Policy;" in Hastings International Comparative Law Review, Volume. 14 Symposium Issue, 1991.

Hoerner, J.A; "The Role of Border Tax Adjustments in Environmental Taxation: Theory and U.S Experience;" Presented at the International Workshop on Market — based Instruments and International Trade, Amsterdam, 19—20 March, 1998.

- Hampton Kate; "Banking on Climate Change: How Public Finance for Fossil Fuel Projects is Short Changing Clean Development:" The Sustainable Energy and Economy Network, Institute of Policy Studies, Transnational institute, Washington D.C, Amsterdam, London, 17th November, 2000.
- Jackson, J.H. "World Trade Rules and Environmental Policies: Congruence or Conflict?" Washington and Lee Law Review, Vol, 49, No. 4, 1992.
- Johnson, D.H.N; "The Effect of Resolutions of the General Assembly of the United Nations," B.Y.B.32, 1955/6.
- Kopp, R.J: "Economic Incentives and Point Source Emissions-Choice of Modeling Platform," World Bank, 1992.
- Kete, Nancy, Runchi, B et al; "Should Development Aid be Used to Finance the Clean Development Mechanism?" World Resources Institute, Climate Note. April 2001 published at http://wri.org/cdmlcdm-note2.html.
- Lawson, Karen, Jiali, and Cathleen, K; "Identifying Investment Opportunities for the Clean Development Mechanism (CDM) in Brazil's Industrial Sector;" Centre for Clean Air Policy August 2001.
- Legge, T; and Egenhoffer, C; "After Marrakesh: The Rationalization Of the Kyoto Protocol," November, 2001
- Malaysian Meteorological Service; "Socio-Economic impacts and Policy Responses Resulting from Climate Change:" A Regional Study in South —East Asia, October. 1990.

- Mumma, A; "The Poverty of Africa's Position at the Climate Change Convention Negotiations"; published at http://lion.meteongo.ke/cna.
- Mailu, G; "AIJ/JI Experience in Africa: Advantages and Disadvantages; Possible Contrasts and Similarities with the CDM"; Paper Presented at the Workshop on Clean Development Mechanism (CDM) of the Kyoto Protocol, Nairobi, Kenya. July 13th to 15th, 1998
- Maya, S; "Baselines and Additionally in the CDM: Is an African Baseline Possible? Report from Regional Workshop in Accra, Ghana, 1998
- Mpazi S; "Developing Countries' Perception of Environmental Protection and Economic Development;" IJIL Vol. 24, 1984.
- Ntambirweki, J; "Law and Sustainable Industrial Development" UNEP: Sustainable Industrial Development, 1998 (UNEP Nairobi).
- Ntambirweki, J; "Sustainable Industrial Development and International Relations". ACTS, Nairobi, 1991.
- Ntambirweki J, "The Developing Countries in the Evolution of an International Environmental Law"; Hastings International and Comparative Law Review. Tenth Annual Symposium on International Legal Practice.' International Environmental Law: Global Trends and Policies, 1991.
- Nvamugasira, W and Rowden, R; "Poverty Reduction. Strategies and Coherency of Loan Conditions: Do the New World Bank and IMF Loans Support Developing Countries Poverty Reduction Goals? The Case of Uganda" April 2002.
- Onyango, J.C and Kiragu, C.N; "Understanding and Integrating Sustainable Development into the Clean Development of the Kyoto Protocol Focus on Africa;" A

Climate Network Africa Workshop for African Experts, 27th — 29th September, 1999; Ministry of Environment and Natural Resources, Republic of Kenya.

- Onyango, J.C and Kiragu, C.N; "Indicators for Sustainable Development with Regard to CDM;" Ministry of Environment and Natural Resources, Republic of Kenya.
- Ominde, S.H and Juma, C; "Stemming the Tide: An. Action Agenda"; in Ominde, .S.H. and Juma, C (eds); A Change in the Weather, African Perspectives on Climate Change, ACTS, Nairobi, 1991.
- Parker, R.W; "Design for Domestic Carbon Emissions Trading: Comments on WTO Aspects," Discussion Draft; The H. John Heinz 111 Center for Sciences, Economics and the Environment, Washington D.C 1998.
- Pew Center on Global Climate Change; "Summary of the Marrakesh Accords on Climate Change;" available at: http://www/pewclimate.org/cop7.
- Pew Center on Global Climate Change; "Climate Change Measures in the Senate Energy Policy Act," September 2002: published at http://www.pewclimate.org/policy/ senateenergy.cfm.
- Paltsev, S. V; "The Kyoto Protocol: Regional and Sectoral Contribution to the Carbon Leakage;" The Energy Journal, Vol. 22 October, 2001.
- Rosencranz, A and Milligan, R; "CFC Abatement: The Needs of Developing Countries;" AMBIO A Journal of the Human Environment, Vol. 9 No. 6 7 October, 1990.
- Sheerin John; "The Greenhouse Effect and Developing Countries;" Economic Development Institute of the World Bank, FDI Working Papers, 1992.
- Schoenbaurn, T.J; "International Trade and Protection of the Environment: The Continuing Search for Reconciliation;" American Journal of International Law, Vol. 91, 1997.

Sokona, Y et.al.; "The Clean Development Mechanism: What Prospects for Africa?" Published at http://www.enda.snlenergie/cdm2.html.

- Sand, P.H; "International Co-operation: The Environmental Experience"; in Matthews,
 JT (ed); Preserving the Global Environment.' The Challenge of Shared Leadership;
 W.W Norton & Company, New York, London, 1991.
- Sathage, J; "*Developing Country Issues*," Presented to a Panel on Prospects of International Action on Global Climate at the Energy Policies to Address Global Climate Change Conference, University of California, Davis September 6 8, 1989.
- Strong, M.F; "From Stockholm to Rio: A Journey Down a Generation;" An Earth Summit Publication No. 1/1991.
- Tolba. M; "Sustainable Industrial Development"; Industry and Environment, July December, 1984.
- Tolba. M; "Transfer of Technology and Financing Global Environment: The Role of Users Fees:" UNEP/OzI. Fin 1/2, January, 1990.
- Tietenberg, H.T; "Managing the Transition: The Potential Role of Economic Policies;" in Mathews, J.T (ed); Preserving the Global Environment: The Challenge of Shared Leadership W.W Norton & Company, New York, London, 1991.
- United Nations Development Programme/United Nations Environment Programme/The World Bank; "A Review of Country Case Studies on Climate Change;" Working Paper No. 7, January 1994.
- United Nations Conference on Trade and Development; "A Pilot Greenhouse Gas Trading System: The Legal Issues:" UNCTAD/GDS/GFSB/Misc.2 (Geneva: United Nations, 1996)
United Nations Environment Programme; "Legal and Institutional Arrangements for Environmental Protection and Sustainable Development in Developing Countries" UNEP Environmental Law Library, No.3, 1997.

Weizsacker, V.E.V; "Global Challenges and Environmental Tax Reform" in Ominde. S.H and Jurna, C (eds); A Change in the Weather: African Perspectives on Climate Change, ACTS, Nairobi, 1991.

Widdows, K; "What is an Agreement in International Law?" BYB, 1979, Clarendon Press, Oxford, 1981.

Wofford, Carrie; "A Greener Future at the WTO: The Refinement of WTO Jurisprudence on Environmental Exceptions to GATT;" Harvard Environmental Law Review, 2000.
World Bank; News Release No: 2002/118/S — "Prototype Carbon Fund (PCF) Shows that Kyoto Protocol Works: Selling Emissions Make Marginal Projects Financially Attractive," 5th November 2001: published at: http://www.prototypecarbonfund.org.
Zhou, P.P; "A Potential Transport Sector Clean Development Mechanism Project for Africa: Compressed Natural Gas Buses," CDM Workshop Report, Climate Network

Africa, Nairobi, 2000.

c) Official Documents/Publications

Australian Greenhouse Office; Australia's Third National Communication on Climate Change: A Report Under the United Nations Framework convention on Climate Change, 2002 published at: http://www.greenhouse.gov.au.

Climate and Development Initiatives; Workshop Report of the Clean Development Mechanism of the United Nations Framework Convention on Climate Change, 1st and 2nd February, 2000, Kampala, Uganda.

I

Climate Network Africa; Report of the Clean Development Mechanism Workshop for the Eastern and Southern Africa, 3 to I 5th July, 1 998, Nairobi, Kenya.

- ntergovernmental Panel on Climate Change (IPCC) 2001. Climate change 2001: Mitigation Contribution of Working Group III to the Third Assessment Report of the IPCC, London, Cambridge University Press, 2001.
- IPCC 2001; Climate Change 2001: Mitigation; Summary for Policy Makers and Technical Summary of the Working Group 111 Report, Geneva, IPCC, 2001.
- IPCC 2001; Climate Change 2001: The Scientific Basis; Contribution of the Working Group I to the Third Assessment Report of the IPCC on Climate Change, London, Cambridge University Press, London, 2001.
- IPCC 2000; Emissions Scenarios Summary for Policy Makers; IPCC Working Group II, Geneva, Switzerland, 2000.
- IPCC 2000; Good Practice, Guidance and Uncertainty Management in National Greenhouse Inventories, Geneva Switzerland, IPCC Secretariat, 2000.
- IPCC 2000; Land Use, Land Use Change and Forestay; A Special Report of the IPCC, Geneva, Switzerland, IPCC Secretariat, 2000.
- IPCC 1995; Second Assessment Report by the Intergovernmental Panel on Climate Change; SAR Working Group I The Science of Climate Change; SAR Working
- Group II Climate', Impacts and Adaptation; SAR Working Group 111 Socio— Economic Aspects of Climate Change; IPCC Secretariat, Geneva, Switzerland, 1995.
- IPCC/WMO/UNEP; Climate Change: The IPCC 1990 and 1992 Assessment Report June, 1992.

Jager, J and Ferguson H.L (eds); Climate Change: Science, Impacts and Policy — Proceedings of the Second World Climate conference; Cambridge University Press. New York, Melbourne, First Published 1991, WMO/UNEP/UNESCO/IOC/FAO.

- Ministry of Water, Lands, and Environment; Uganda's Initial National Communication to the United Nations Framework Convention On Climate Change October, 2002, Kampala, Uganda.
- Ministry of Natural Resources and the Department of Meteorology; Final Report on Sources and Sinks of Greenhouse Gases in Uganda; A UNEP/GEF Sponsored Project; August 1994, Kampala, Uganda.
- Ministry of Natural Resources of the Republic of Uganda; The National Environment Management Policy for Uganda, 1994, Kampala, Uganda.
- Ministry of Energy and Mineral Development of the Republic of Uganda; The Energy Policy for Uganda, September 2002, Kampala, Uganda.
- Ministry of Water, Lands and Environment of the Republic of Uganda; The Uganda Forestry Policy, 2001, Kampala, Uganda.
- National Environment Management Authority; State of the Environment Report for Uganda, 1996.
- National Environment Management Authority; State of the Environment Report for Uganda, 1998.
- United Nations Division for Sustainable Development; Department for Policy
- Coordination; Report of the Expert Group Meeting on identification of Principles of
- International Law for Sustainable Development, Geneva, Switzerland, 26th 28th

September, 1995.

United Nations Commission on Sustainable Development; Task Manager's Report on Decision - Making Structures; international Legal instruments and Mechanisms; New York, 16th - 27th May, 1994.

United Nations Division for Sustainable Development; Johannesburg Summit 2002: Full Report of the National Implementation of Agenda 21; published at <u>http://www.un.org/esa1agenda21/natlinfo</u>

United Nations Framework Convention on Climate Change Secretariat; Report of the Conference of the Parties on its 7th Session, held at Marrakesh, 29th October to 10th November, 2001.

World Commission on Environment and Development; Report of the World Commission on Environment and Development, Presented to the Intergovernmental Intercessional Preparatory Committee, UNEP Governing council, March, 1987.

World Bank Prototype Carbon Fund Annual Report, 2002; published at: http://prototypecarbon fund.org/html Annual Report 2002.pdf.