ASSESSMENT OF THE IMPACTS OF ENVIRONMENTAL LAWS ON BIODIVERSITY CONSERVATION. ACASE STUDY OF SOUTH WESTERN UGANDA

BY

TUMUHEKI ABEL

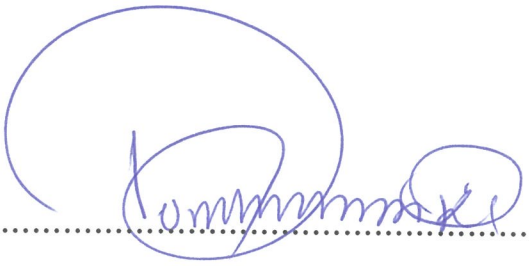
BSCW/45164/143/DU

A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF ENGINEERING AND APPLIED SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELORS DEGREE OF CONSERVATION BIOLOGY AND WILDLIFE MANAGEMENT OF KAMPALA INTERNATIONAL UNIVERSITY

SEPTEMBER, 2017

DECLARATION

I TUMUHEKI ABEL declare that this research work is my original work and has never been presented to any university for any academic award



Signature.....

Date.....14th/09/2017

APPROVAL

This research work is being compiled under my supervision as a Kampala International University Lecturer.

Signature.....  **Date** .....14/09/2017.....

DR. MENWO UKECHI WILSON OSIGWE

DEDICATION

I dedicate this piece of work to my parents, siblings, friends, relatives and all those who supported me during my period of study

ACKNOWLEDGEMENT

First of all I would like to express my humble thanks and sincere appreciation to the almighty **GOD** who had given me good health, wisdom, and all that I need to accomplish this piece of work,

Much thanks giving to the beloved family of **Mr.** and **Mrs. MATAMA RODGERS** for the moral support and encouragement during my study and **MY FAMILY** for the love given to me for my entire school period.

Special thanks goes to my beloved parents **CATIE** and **TRAVOR AMMONS AND THEIR FAMILY,** for the parental care, love and most importantly for the selfless financial support rendered to me for all of this time I have been studying.

Also my sincere thanks go to my supervisor **Dr. WILSON OSIGWE** for the guidance and support during this course of work.

My special thanks also goes to my fellow students and friends, and all who labored to help me in one way or another during compiling this piece of work especially my brother **OKELLO OJAS, OJUMAN JOAKIM.**

Finally my sincere thanks goes to all the directors and staffs of Kampala International University School of engineering and applied sciences who supported me morally and intellectually during these years of studies.

LIST OF ABBREVIATIONS

E.I.A : Environmental Impact Assessment.

S.E.I.A: Strategic Environmental Impact Assessment.

E.P.A : Environmental Protection Agency.

N.F.A : National Forestry Authority.

N.E.M.A: National Environmental Management Authority

N.E.M.P: National Environmental Management Authority.

N.E.A.P: National Environment Action Plan.

NGOs : Non Governmental Organizations.

C.I.T.E.S : Conventional on International Trade in Endangered Species.

L.D.C : Low Developed Countries.

F.A.O : Food and Agriculture Organization.

I.U.C.N : International Union for Conservation of Nature.

U.W.A : Uganda Wildlife Authority.

U.N.E.P : United Nations Environmental Programme.

W.C.E.D :World Commission on Environment and Development.

TABLE OF CONTENTS

DECLARATION i
APPROVAL ii
DEDICATION iii
ACKNOWLEDGEMENT iv
LIST OF ABBREVIATIONS v
ABSTRACT ix

CHAPTER ONE. **1**
GENERAL INTRODUCTION **1**
1.0 Introduction. 1
1.1 Background of the study. 1
1.1.1. International management of the environment. 2
1.1.2. Role of law in environmental management 3
1.1.3. Basic Environmental Management Laws and Polices of Developed Countries. 5
1.1.4. Environmental management polices and laws in Third developed countries. 8
1.1.5. Environmental management policies and the law in Kenya 9
1.1.6. Defects of Present Environmental laws ..... **Error! Bookmark not defined.**
1.2 Statement of problem 21
1.3 Purpose of the study. 23
1.4 Objectives of the study 23
1.5 Research question 23
1.6 Significance of the study 23
1.7 Scope of the study 24
1.7.1 Subject scope 24
1.7.2 Geographical scope 25
1.7.3 Time scope 25
1.8 Conceptual framework 26

CHAPTER TWO. **27**
LITERATURE REVIEW **27**

2.1 RELATED LITERATURE AND SURVEY ON BIODIVERSITY IN UGANDA 27
2.2 Uganda's obligation on biodiversity conservation at international level. 28
2.3 The legal frame work for biodiversity conservation in Uganda. 29
2.4 Institutional arrangement for biodiversity management in Uganda. 31
2.5.0 Status of global biodiversity. 32
2.5.1. Status of biodiversity conservation in Uganda. 32
2.5.2 Challenges on biodiversity conservation in Uganda. 33
2.5.3 Opportunities for biodiversity conservation in Uganda. 33
2.5.4 Forest biodiversity in Uganda 34

CHAPTER THREE 35
RESEARCH METHODOLOGIES 35
3.0 Introduction 35
3.1 Research design. 35
3.2 Study population. 35
3.3 Sampling design 36
3.4 Sample size 36
3.5 Sampling procedure. 36
3.6 Study variables. 37
3.7 Sources of data 37
3.7.1 Secondary data collection 37
3.7.2 Primary data collection. 37
3.8 Methods of data collection and instruments used. 37
3.8.1 Questionnaires. 37
3.8.2 Interviews. 38
3.8.3 Observation. 38
3.9 Data processing analysis and presentation 38
3.9.1 Data processing 38
3.9.2 Data analysis 38
3.9.3 Data presentation. 38
4.0 Ethical considerations 39

CHAPTER FOUR. **40**
PRESENTATION, INTERPRETATION AND DISCUSSIONS. **40**
4.0 Introduction. 40
4.1 Background characteristics of respondents. 40
4.1.1 Respondents by sex. 40
4.1.2 Respondents by age. 40
4.6 The strategies that are being employed to cope with strengthen and improve on the fairness, the implementation of environmental laws and policies for biodiversity conservation. 47

CHAPTER FIVE. **51**
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS. **51**
5.0 Introduction. 51
5.0 Discussion of findings. 51
5.1.0 Knowledge of the people on the existing environmental laws and policies 51
5.1.1 The positive impacts of environmental laws on biodiversity conservation 51
5.1.2 The negative impacts of environmental laws on biodiversity conservation 52
5.1.3 The strategies that can be employed to strengthen the implementation of environmental laws and policies for biodiversity conservation. 53
5.2 Conclusions. 54
5.3 Recommendations. 55
5.4 Recommended areas for further studies 56
APPENDIX 1. 60
STRUCTURED QUESTIONAIRES FOR INDIVIDUALS AND THE COMMUNITIES . 60
APPENDIX 2: Key informant interview guide. 64
APPENDIX 3: Table for determining the sample size of the population. 65

ABSTRACT

The study focused on the impacts of environmental laws on biodiversity conservation with reference to South Western part of Uganda, with efforts Focused on finding out positive and negative impacts of such environmental laws on biodiversity conservation.

The study involved authority bodies, policy makers such as protected area managers, environmental officers, local chiefs, implementation and enforcement bodies and the general public at large.

CHAPTER ONE.

GENERAL INTRODUCTION

1.0 Introduction.

This chapter covered the background of the study, statement of the problem, purpose of the study, research objectives, research questions, scope and the significance of the study

1.1 Background of the study.

Development of environmental laws gained momentum after the Second World War. During the period of reconstruction, the war devastated countries of Europe embarked on a rapid programme of industrialization which had extremely damaging effects on the environment. Some of these effects have taken a long time to be remedied. The need for legal protection of the environment was motivated by two interests: first, the need to protect scenic resources for both present and future generations and second concern towards the protection of public health. The latter took into consideration the ever increasing population in the cities and the few facilities available to such a population. Other consequences of environmental degradation began to be felt; these included water, air, and noise pollution, pollution from hazardous and conventional wastes, radiation and of late the threat of global warming and depletion of the ozone layer.

The present state of the world's environment calls for immediate action if we are to ensure that the future generations will be able to sustain themselves .Rapid economic development has been achieved at the cost of the environment, resulting in untold suffering to mankind and unprecedented ecological problems.

Annually, according to the 1987 report by the world commission on the environment and development (WCED) Brundtland Report, the state of the world's environment is worsening making immediate action is necessary to arrest the situation. Six million hectares of arable land are turned into worthless dry land, whilst more than 11 million hectares of forests are destroyed annually. This has led to increased changes in rainfall patterns, loss of animal and plant species and disappearance of the rain forest.

1.1.1. International management of the environment.

International awareness of the need to properly manage our environment gained momentum around the middle of this century. In 1947, the United Nations Economic and Social council adopted resolution 32(v) which asserted that the world's natural resources were important for the reconstruction of economies ruined the Second World War. In the 1950s and 1960s it became more and more evident to various countries that increasing environmental degradation could not be prevented by individual states but rather required the intervention of regional groupings or organizations of states.

In 1972 the United Nations Conference on the Human Environment held in Stockholm (Sweden) affirmed the urgency for a properly managed environment if sustainable development was to be archived. The conference adopted the Declaration on the human Environment (Stockholm Declaration) which asserted that human beings are entitled to a healthy environment which it is their duty to protect and improve for future generations. The United Nations Environmental Program (UNEP) was created on the basis of the recommendations of this conference.

The UNEP has been undertaken to develop guidelines and principles on the various aspects of the environment and sustainable development, Other than these guidelines there are currently some 114 conventions and protocols which touch on the environment. These conventions indicate various global concerns for the natural environment ranging from regulations on the use of water, plant protection, pollution, global warming, hazardous wastes, and protection of the ozone layer.

The most up to date report on the world environment is the WCED report which emphasizes the need for harmonizing environmental issues if we are to ensure sustainable growth on a global scale. In recognizing that there is an accelerated ecological interdependence amongst nations, the report calls for more global co.operation in ensuring that global ecology is not over stretched.

Sustainable development can only be achieved if present needs are met without compromising the well being of the future generations.

Finally, the report calls for effective management through legislative and other means by international or regional bodies especially in the areas of shared resources. The United Nations

General Assembly has called upon regional organizations to undertake measures in accordance with findings of the report.

1.1.2. Role of law in environmental management

In the scope of environmental protection, law has facilitative functions in both national and international in decision making and in the implementation of policy. However it is argued that law should not be seen only in the passive role of a facilitator of policy implementation but rather actively work towards establishing policy where the game is wanting (Okoth Owiro 1988). Law also assumes the role of articulating environmental policies and regulating existing programmes.

In environmental management law assumes a three dimensional role (Ogolla Bondi, 1987)

(I) Providing for the allocation of natural resources and states the rules and regulations governing their use and development. Where there's misuse of such resources , the law provides sanctions for any activity within the forest which is harmful to the environment. A good example is seen in the legislation of protecting the forests in Uganda that is the forest Act (Chapter 360) which makes it an offence for anyone attempted to remove any produce from the forest or carrying out any activity within the forest which is harmful to the environment without the authorities concern.

(ii) Providing set standards for affecting resource management.

In regulating the uses of available natural resources ; the primary concern of the law is to ensure appropriate resource management and guarding them against possible environmental deterioration. In ensuring further effective resource management, Law may undertake the role of establishing institutions which are given the responsibility of carrying out legal provisions to ensure effective management for instance , the establishment of agricultural boards, conservation commissions, water boards, or pesticide control boards. We shall discuss these boards in greater detail later in this chapter.

In carrying out its second role, the law undertakes to provide set standards which have to be compiled within order to ensure effective resource management . this is carried out effectively through license or permit system, which requires the permit or license holder to ensure

compliance with the set standards; failure to do so would result in the withdrawing of the permit or license .This system is effectively used in the regulation of the uses of air. Water, insecticides and pesticides.The legal issuing authority issues a permit or license to a person , group of persons , or to a company , and indicates the requisite standards which have to be met and constantly maintained. Such a permit or license should also indicate the sanctions or penalties that one may face in the event of violation of the stated standards arising out of environmental degradation.

Besides providing standards for using a resource , law may also prescribe the standards which have to be complied with in the event of by- products or wastes being discharged into the environment. Thus, those responsible for such activities have to ensure that discharges will be treated in such a away at to ensure that only minimum damage is caused and no harm will be done to human beings, plants and domestic or wild animals. Such requirements are often imposed upon industrial plants or local authorities.

(iii) Establishing the institutional mechanisms for controlling the impacts of development projects and human activities on the environment.

These two activities are the major causes of environmental degradation and as such ,they have to be checked. Developmental activities such as building of dams , industrial plants and the introduction of new farming technology and Human activities which include the clearing of land for cultivation or for settlement , agricultural practices and building of houses

In order to protect the environment from degradation caused by such activities, the law seeks to create institutions which are competent to assess the possible impacts on the environment arising from such activities. These institutions may as in the case of development projects , require that initiators of such a projects prepare a full environmental impact assessment statement. This statement should show the possible impact of such projects and any present and future measures that will be undertaken to ensure environmental protection. Institutions demanding such a statement may also appoint independent experts to determine the provisions of an Environmental Impact Assessment Statement (BIAS).

Today in both developing and developed countries , existing environmental legal regimes are falling or have fallen behind development activities. This makes it necessary to constantly reformulate or ammend existing laws or enact new laws in order to keep pace with such activities. Whereas the need for an affective environmental law cannot be overemphasized, one should bear in mind that by itself, law is ineffective and it requires the close cooperation of every member of the society if it is to be successful. In case of shared natural resources such as lakes, river. Lakes, and seas, there is also a need for close co-operation among the affected countries, to ensure the protection of shared resource.

1.1.3. Basic Environmental Management Laws and Polices of Developed Countries.

The notion of environmental protection in order to achieve a sustainable development initially developed amongst the industrialized nations but later spread to the third world countries. It was in the developed countries that environmental evident. As a result, the last twenty years or so have been characterized by campaigns to ensure the proper use and protection of the environment. One also finds that most international agreements on the environment have resulted from problems which have reached a crisis point within the developed countries, we shall look at the United States of America , and how it has managed to make provisions for environmental protection.

United States of America.

Concern for environmental protection in the United States was first expressed in the last century with the enactment of the River and Harbors act of 1889 which prohibited the dumping of waste material into navigable waterways. However, until the middle of this century, environmental concern was mostly limited to pollution control expressed through legislation or ordered by the court (Glad 1985)

The rapid growth of industry during the two world wars had devastating effects on the environment especially on air and water. To regulate water pollution, the federal water pollution control Act was enacted in 1948 and its primary objective was to ensure that states undertook the regulation of water pollution. This Act however, needed to be strengthened, in order to ensure effective control. In 1965, the water Quality Control Act was enacted to provide for the

establishment of water quality standards for inter-state waters, which the federal agency would use for combating pollution.

Water control was later comprehensively provided for by the 1977 clean water Act which amended the previous water Acts. In seeking to achieve a no pollution water level, the Act set uniform effluent standards to be met by dischargers. The Act requires that, first all states establish treatment management agencies; second federal effluent standards be met and enforced; and third states are to set ambient quality standards and provide for their enforcement. The last requirement indicates that before effluents are discharged, a permit must be granted. This ensures that any effluent discharged, meets the already national effluent standards.

Air

Concern for air quality, was given legal recognition in 1965 by the clean Air Act. This act required that all states to set Air quality standards and make their own plan for implementing and enforcing them. The attorney General was also given powers to that any air pollution substantially dangerous to health should cease.

The Clean Air Act underwent various amendments culminating in the 1977 Clean Air Act. This amended Act provides for the establishment of national primary or secondary ambient air quality standards. These national standards are to be achieved in each air quality control region (Grad 1985)

In addition, individual states are required to set their own standards and also indicate how they intend to attain the objectives set by the national standards. Where there is a contravention of the standards set and pollution results, the Environment Protection Agency is empowered by the Act to undertake to prosecute those that pollutes and bring abatement to the pollution.

Pollution from solid waste (either conventional or hazardous) is ever increasing problem arising out of industrialization. The growing concern over this problem culminated in the 1965 Solid Waste Disposal Act. Despite this enactment, solid waste was considered a lesser problem than air and water pollution. But in 1976 the enactment of the Resource Conservation and Recovery Act indicated that this problem should onlooker be marginalized. The 1976 Act requires the safe disposal of hazardous waste materials and bars open dumping. Disposal of these wastes should

be carried out in permitted disposal facilities and contractors doing the dumping must keep a record of the type, quantity and locations where hazardous wastes is disposed of. Although states must operate their own programmers they have to meet the stated national requirements on waste management.

In addition to the threat of pollution, the threat of radiation (which is harmful to health and to the environment) is also taken seriously in the U.S.A. The atomic energy Act of 1946 established an Atomic Energy Commission to set standards for radiation protection with regard to nuclear installations. The Commission has also prescribed standards for protecting the general environment from radioactive materials. It may grant, modify or revoke licenses where it deems necessary.

Noise.

The need for a noise free environment, led to the Noise Control Act of 1972, which gives the Environmental Protection Agency (E.P.A) administrator power to develop and publish criteria on noise, identify those products which are major sources of noise and formulate noise emission standards for them.

The N.E.P.A.

Perhaps the most important environmental statute to enhance environmental awareness in the U.S.A is the National Environmental Protection Agency to oversee the protection and conservation of the environment. The EPA is empowered to set standards.

In situations where development practices affect the environment the N.E.P.A requires that development agencies must provide an environmental impact assessment statement outlining how the agency intends to deal with environmental damage arising from the activity, both presently and in the future.

However, these statements are only necessary where it is a federal activity which is major in scope and will significantly affect the quality of the environment. Unhappily, this leaves out private developers who cause a great deal of damage and who may claim that their activity is not "major" (Grad, 1985)

It is evident from the facts and legislations mentioned in this section that in U.S.A among the other developed countries is very much concerned with the environment. Where industrialization has led to environmental degradation, the U.S.A. is fortunate enough to have advanced technological means of addressing and managing existing and future environmental problems.

1.1.4. Environmental Management Polices and Laws in Third World Countries.

The need for efficient environmental management in order to ensure a sustainable economic growth, has not escaped the governments of most third World Countries. The policy makers in these countries are faced with difficult task of making decisions which will promote economic development.

Development and the environment are complimentary to each other and this is why there's a need to harmonize environmental conservation objectives and natural developmental aspirations and goals (Kith Owego, 1988 WCED,1997)

However, environmental considerations have often been viewed by various developing countries as hampering economic development. As a result of such shortsighted policies, economic and social development has been achieved at the cost to the deterioration of the environment. The need for rapid economic growth in order to improve the standards of living was voiced by African countries at a regional seminar on the Human Environment in 1971. In their declaration, they stated that economic and social development is essential for ensuring a favorable living and working environment for and for the improvement of the quality of life. This lays a heavy burden upon the environment in the name of development

Today, most African countries are faced with the threat of continuous desertification, which coupled with the 1984-1985 severe drought has resulted in untold sufferings .These deserts could have been avoided by effective management to ensure that development is not overstrained.

Most developing countries (including those in Africa) are also faced with the problems of deforestation and pollution which result in immense environmental degradation, and may eventually lead to the loss of animal and plant species , changes in rain patterns and disappearance of rain forests.

(WCED, 1987). Therefore where the environment is overstressed because of the urgency for immediate development, future economic progress is threatened. this can produce negative results as the quality of life and that of the entire environment continue to deteriorate . In discussing the position of third World countries, we will concentrate on the Ugandan situation.

1.1.5. **Environmental Laws in Uganda.**

Here in Uganda The National Environmental Action Plan (NEAP) and the National Environmental Management Policy (NEMP) were formulated between 1991 and 1994 by the government of Uganda to provide a framework for addressing the gaps in the environmental management as well as strategy for integrating environment into the national socio-economic development. One of the outcomes of NEAP was the formulation of National Environmental Management Policy (NEMP),The overall goal of the NEMP is for sustainable social and economic development which maintains or enhances environmental quality and resources. Sustainable development is defined as development that meets the needs of the present without Compromising the ability of future generations to meet their own needs. Sustainable Development, which conserves land, water, fish, plant and animal resources, is considered Environmentally sound and non-degrading, technically appropriate, economically viable and socially acceptable.

Uganda, like her counterparts in Africa, has not been passive in promoting and advocating for sustainable development. There is still, however, need to achieve sustainable development in both the economic and social spheres. Faced with poverty due to low income per capita is one of the most threats to the environment and the need to promote industrialization in the new wake of modernization, The need to use law to protect the environment and ensure sustainable development becomes crucial. Uganda, in the 1990s enacted laws that uphold the concept of sustainable development.

The Constitution of Uganda, 1995

The Constitution, being the supreme law in Uganda, provides for environmental protection and Conservation. It provides, in the National Objectives and Directive Principles of State Policy that the State shall promote sustainable development and public awareness of the need to manage

land, air, and water resources in a balanced and sustainable manner for the present and future generations.

The Constitution further provides that the utilization of natural resources of Uganda is to be managed in such a way as to meet the development and environment needs of present and future Generations of Ugandans. In particular, the State is required to take all possible measures to prevent or minimize damage and destruction to land, air, and water resources due to pollution or Other causes.

The Constitution also imposes a duty on the state to protect important natural resources, including land, water, minerals, oil, fauna and flora on behalf of the people of Uganda. In article 245, the Constitution provides that Parliament shall, by law, provide for measures Intended: to protect and preserve the environment from abuse, pollution and degradation, to manage the environment for sustainable development, and to promote environmental awareness. This has already been implemented through the National Environment Act, the Water Act, the Forest and Tree Planting Act, the Local Governments Act, and the Wildlife Act, among others.

The provisions of the Constitution protect property rights and other individual rights. Furthermore, the State is to promote and implement energy policies that will ensure that the people's basic needs and those of the environment are met. Above all, Article 39 of the constitution provides for an individual right to a clean and healthy environment. This provision is complemented by Article 50, which gives any person the right to take judicial action to redress the breach of a fundamental right, irrespective of whether the breach affects him or another person. The above provisions are important in broadening the standards of citizens to redress environmental wrongs.

The State, including local governments, are required to create and develop parks, reserves and recreation areas and ensure conservation of natural resources and to promote the rational use of natural resources so as to safeguard and protect the biodiversity of Uganda. The public trusteeship of rivers, lakes, wetlands, national parks, game reserves and forest reserves is vested in the State.

The Local Governments Act

The Local Governments Act provides for the system of local governments, which is based on the district. Below the District there are lower local government and administrative units. This System provides for elected Councils. The Executive Committee of each Council is nominated by the Chairman. The functions of this Executive Committee include:

- initiation and formulation of policies for approval of Local Council
- overseeing the implementation of government and council policies, monitoring and

co-ordinating activities of non-governmental organization in a district and

- Receiving and solving disputes forwarded to it from lower local government units.

The Agricultural Seeds and Plants Act

This Act provides for the promotion, regulation and control of plant breeding and variety release, Multiplication, conditioning marketing, importing and quality assurance of seeds and other Planting materials.

It establishes the National Seed Authority and a Variety Release Committee. The Act also establishes the National Seed Certification Service which is responsible for the design, establishment and enforcement of certification standards, methods and procedures, registration and licensing of all seed producers, auctioneers and dealers, advising the Authority section 2a (1) and 49 of the Local Governments Act. On seed standards and providing the Authority with technical information on any technical aspects affecting seed quality.

The Act imposes stringent requirements for variety testing. All imported and domestic varieties Of seeds or breeding materials are required be tested for a minimum of three generations before Their releases and imposes licensing requirements for the importation and dealing in varieties Of seeds and plants. In view of the increasing importance of genetic resource conservation, the Act is a key element in natural resource management by protecting the country against unwanted alien species of plants and conserving endemic species.

The Uganda Wildlife Act

The Act was enacted in 1996, to provide for sustainable management of wildlife, to consolidate

The law relating to wildlife management, establish a coordinating, monitoring and supervisory body for that purpose, It fundamentally changes the way wildlife is managed, It repealed the National Parks Act and the Game (Preservation and Control) Act.

The Uganda Wildlife Authority was created under the Act with the following functions-

(a) Ensuring the sustainable management of wildlife conservation areas.

(b) Identifying and recommending areas for declaration as wildlife conservation areas and the revocation of such declaration.

(c) Establishing the management plans for wildlife conservation areas and for wildlife Population outside wildlife conservation areas.

(d) Proposing policies and procedures for the sustainable utilization of wildlife by and for the benefit of the communities living in proximity to wildlife.

(e) Controlling internal and external trade in specimens of wildlife.

(f) Promoting conservation of biological diversity ex-situ and to contribute to the establishment of standards and regulations for that purpose, and

(g) Promoting public participation in the management of wildlife.

From the perspective of this research, the relevant functions of UWA for the purposes of wildlife protected areas and wildlife management areas among others are, to preserve selected examples of biotic communities in Uganda and their physical environment, preserve populations of rare, endemic and endangered species of wild plants and animals and to generate economic benefits from wildlife conservation for the benefit of the people of Uganda.

The protection of wildlife under the Act is seen from two perspectives, conservation within Conservation areas and conservation outside protected areas. Conservation areas are declared by sections 6(2)) 7(1) of wildlife Act.

The minister in consultation with the District Council in whose jurisdiction the proposed area is located. The Parliament is empowered to approve such establishment by its positive resolution. Conservation areas are divided into two categories; wildlife protected areas and wildlife Management areas.

The wildlife management areas include wildlife sanctuaries, community wildlife areas, and such other areas as the Minister may declare. Wildlife protected areas include national parks, wildlife reserves and such other areas as the Minister may declare to be wildlife protected areas.

The Act preserves community property rights. Local communities and individuals who have property rights in land within the protected areas are permitted to carry on activities compatible with conservation principles and practices of wildlife resources. The Act also recognizes and guarantees the historic rights of individuals and communities which were recognized in previous laws, such as the National Parks Act, the Forests Act, and the Game (Preservation and Control Act).

The Act restricts entry into wildlife protected areas without authority. Any person who enters contrary to the provisions of the Act commits an offence. This is one way of controlling access to species in protected areas.

A novel feature of the Act is the provision of wildlife use rights which are tradable 'rights to hunt, farm, ranch, trade in or use wildlife for educational purposes.

The Act provides for their management and transfer for the purpose of proper management, the wildlife use rights are classified into various classes as - A-Hunting, B-Farming, C-Ranching, D-Trading in wildlife products, E-Educational Scientific or medical uses.

These wildlife use rights are transferable and in some cases, a transfer permit is needed especially for class A and class E. This kind of transfer is known as a permitted transfer.

The Minister, upon the advice of the Board, may by statutory instrument or vary, revoke or create additional wildlife use rights.

For one to utilize wildlife or wildlife products, one must first obtain a grant of wildlife use rights. Wildlife use rights are not enjoyed in perpetuity, and are not absolute. If there is non-compliance by a right holder, with the terms of grant or any other sufficient reason to which, the grant of wildlife use rights was made or that it is expedient that a grant of a wildlife use right be revoked, it may be revoked subject to the conditions of the Act. Such a holder of a wildlife use right may, however, be entitled to compensation.

The Act provides measures for regulating and licensing professional trappers and hunters, and Penalties for their noncompliance. It prohibits the taking of protected species, so as to maintain sections 17(1) 18(8) 25, 29 and 41 of the wildlife Act of 1996.

The Act provides for the management of vermin and other problem animals. The Act also contains the usual limitations on the methods of hunting and taking of wildlife. It makes provisions regulating international trade in species and specimens, thereby implementing the CITES. It is an offence for any person to import, export or re-export or to attempt to import Or re-export any specimen, except through a customs officer or port and without producing a Valid permit to a customs officer.

The Act establishes a wildlife appeal tribunal, which consists of seven persons appointed by the Chief Justice. This tribunal hears and determines appeals from the decisions of Uganda Wildlife Authority. It is hoped that this tribunal will expedite cases involving wildlife resources.

All the foregoing is intended to conserve wildlife throughout Uganda, so as to maintain the abundance of diversity of species and to support sustainable utilization of wildlife for the benefit of the people of Uganda.

The Act, from the above synopsis, changes the philosophy of wildlife conservation in Uganda. It moves away from a state centered management system, to a system that encourages public participation and private sector involvement. It establishes local government wildlife committees, so as to involve local communities in wildlife management issues. It further updates and modernizes the law and goes a long way to implement the conservation philosophy of the Convention on Biological Diversity. By opening up the wildlife sector to popular participation, it is hoped that this new law will promote the conservation ethic and eradicate the view that wildlife is a property of nobody, which is available for taking and Misuse.

The National Environment Act

This Act establishes the National Environment Management Authority (NEMA) as the over all body and principal agency responsible for coordinating, supervising and monitoring all aspects of environmental management in Uganda.

NEMA is empowered, in consultation with the lead agencies, to issue guidelines and prescribe measures and standards for the management and conservation of natural resources and the environment. NEMA is mandated to;

- integrate environmental considerations into socio-economic development policies and programmes.
- develop standards, guidelines, laws and other measures in environmental

management; and

- coordinate government policies, liaise with lead agencies and international

Organizations in environmental management

At the apex of NEMA is the Policy Committee on the Environment, composed of 10 ministers charged with various sectors of environment. The Policy Committee is responsible for the sections 49 of the wildlife Act 1996 and cap 153 sections of the environment Act 1995. formulation and implementation of policy guidelines, and coordinating environmental policies of various government agencies.

The Act establishes the Board of Directors, who are appointed by the Minister, with approval of the Policy Committee on the Environment. The members of the Board are appointed by virtue of their knowledge and experience in environment management. The principal role of the Board is to oversee the operation, policy and to review the performance of Management of NEMA and to establish procedures for the management of staff. They have basically an administrative function.

The Board is given the mandate to appoint technical advisory committees, including those on-

- Soil Conservation;
- Licensing of Pollution;
- Biodiversity, and
- Environmental Impact Assessment.

The Act also enables local administrations to be involved in the management of the environment. The Act creates District Environment Committees, charged with the management of Environmental issues at the District level. Environment Committees are created at the lowest levels of the local government structures to enable public participation in environmental decision-making at those levels.

This kind of institutional framework ensures that natural resources are controlled and managed by communities for their own benefit on sustainable basis.

Sustainable Development Measures under the Act

(a) Environmental Impact Assessment

One of the key management tools provided by the Act is the requirement of environmental impact assessment (EIA) for projects likely to have a negative effect on the environment. Regulations have been making detailing the measures and processes that can be taken in conducting an EIA and environmental audits.

(b) Collaboration with local authorities

The Act requires that the Government to collaborate with the local governments in the management of the following areas.

- lakes and rivers;
- lakeshores and riverbanks on sections7(2) of the Environment Act (1995)
- Wetlands;
- hilltops, hill-sides, and mountainous areas;
- conservation of biological resources;
- Forests;
- planting of woodlots; and
- range lands, land use planning.

These environment management areas are specifically selected because of their immediate Relevance to community use and hence, the need to involve local communities. The key emphasis is to permit the use of resources within their capacity to regenerate.

Control of Pollution

The Act contains, in addition to these provisions relating to management of natural resources, important provisions on the control of pollution. Since pollution is a relative state of affairs, the Act provides for mechanisms to establish environmental standards and criteria for what is considered environmentally acceptable behavior and phenomena. Where a person wishes to exceed the standards, which have been set, such a person must apply for a pollution license under Part VIII of the Act. Standards for the control of pollution are now in the process of formulation.

Enforcement of the Law

The Act provides for a variety of mechanisms to ensure that the law will be enforced, that go Beyond the traditional command and sanction approach of criminal law. The following are some Of the mechanisms:

Environmental easements

Under the Act, a person may apply for an easement to protect the environment. In view of the Constitutional provision relating to rights to a clean and healthy environment and the capacity of any person to enforce that right notwithstanding that his specific rights have been affected, this easement differs from the common law easement. It may be enforced by anybody who finds it necessary to protect a segment of the environment, or view even where a person may not own property in the proximity of the property subject to the easement.

Environment restoration orders and improvement notices

The Authority or a court may issue a restoration order requiring the person to cease the activities or to restore the environment as much as possible to its original state if the person's activities are likely to affect the environment. The order may be given pursuant to an action brought by sections 24-3, 57-65, 72-76. individual or upon the initiative of the authority. Restoration orders can be enforced by the Authority even without a court order and at the cost of the person violating the law.

Raising awareness

The need for popular awareness is a key requirement for enforcement of environmental legislation. NEMA is given the mandate to carry out education and awareness campaigns, to ensure that the public participates in environmental decision-making and enforcement.

Licensing and registration of activities and substances

The licensing of pollution has already been discussed above. There are other activities, which require specific permits. These include the import, manufacture, and disposal of hazardous chemicals, wastes and substances. In order to control the environmental effects of these substances, the law requires their classification and labeling.

The use of economic and social incentives

The Act clearly provides that management measures should be carried out in conjunction with the application of social and economic incentives including taxation measures and environmental performance bonds.

Use of Criminal law

Criminal law remains a veritable instrument for the control of behavior, because of the natural tendency of human beings to fear the infliction of pain, isolation or economic loss. Therefore, the Act provides for serious penalties against infraction of its provisions. Criminal law, however, cannot be the mainstay for the enforcement of environmental law, but is a necessary supplementary measure to the approaches also given above.

The Land Act

The Land Act provides for the tenure, ownership and management of land. Subject to Article 237 of the constitution, all land in Uganda is vested in the citizens of Uganda and is owned in accordance with customary, freehold, mailo and leasehold land tenure systems. The customary mode of land ownership is recognized as a form of tenure and the occupants enjoy security of tenure on former public lands, for which, a certificate of title known as "a certificate of customary ownership" is granted to the owner of such land.

The colonial land settlement, which was made in the Buganda, Ankole, and Toro Agreements at the turn of the 19th Century, had dispossessed many people who occupied the land before sections 67 to 71 and 85 to 87.

Under the 1995 Constitution, these occupants are protected and their protection has now been detailed by the Land Act. A bonafide occupant is defined as a person who, before the coming into force of the Constitution had occupied and utilized or developed any land, unchallenged by the registered owner or his agent for twelve years or more, or a person who had been settled on land by the government or its agent which may include a local authority.

Under the Land Act, a person who acquires land is required to manage and utilize it in accordance with the existing environmental laws, and any use of land must conform to the law relating to town and country planning. The implication of this is that even customary tenants,

occupants are required to observe the environmental laws. This provision obviously curtails the right of exclusive ownership of land as it makes it subject to the environmental laws.

The Water Act

The Water Act is one piece of Uganda's environmental legislation with key provisions to enhance sustainable development of water resources. It provides for the use, protection and management of water use and supply.

Most of its provisions have the key objective of protecting the environment and in turn ensuring all water resource-based development is sustainable. Important aspects in the Act include the following sections 29, 33,43,45 and 44

Rights in water are vested in government;

All rights to investigate, control, protect and manage water are vested in the government of Uganda. Government is accordingly better placed to ensure that water resources are utilized sustainably.

Planning for water use;

The Act establishes the water policy committee, an inter-sectorial body, charged with coordinating the preparation, revising and keeping up to date the comprehensive action plan for the investigation, controlling protection, management and administration of water resources for the nation. Such planning may specify types of activities, development of works, which may not be done without the prior approval of the policy committee.

Control on the use of water resources;

The Act provides for the use of permits to use and supply water. A person who needs to construct or operate any water works or for waste discharge, needs permission. The permit system ensures that use of water resources is environmentally friendly and promotes sustainable development. These controls also ensure that water is not treated as a free good, but as a good With a value to be paid for. This economic valuation of water is an important incentive for its conservation. The Water Act, however, excludes abstraction of small quantities f water from the operation of the water permits.

Water easements;

An easement is the right of a person over the land of another person. Under Water Act, an easement may enable a holder of a water abstraction permit to bring water to or drain water from his land over land owned or occupied by another person. In the same way, an easement may enable a holder of a waste discharge permit to drain waste from his land over the land owned or occupied by another person. The works for which an easement is granted has to be maintained and repaired so as to comply with development that is sustainable.

An authorized person may enter land for the purposes of inspecting works for the use of water. He may take samples and make tests to find out whether water is being wasted, misused or polluted, or whether the terms of any permit are being met. Non-compliance is an offence under the Act. On sections 4, 15 and 16.

All these aspects of the Water Act have the object of sustainable use of water resources, which runs through the entire Act. Waste, misuse and pollution, which may lead to unsustainable use of water, are prohibited.

The Fisheries Act

This Act regulated fishing, conservation of fish, the catching of crocodiles and the sale and movement of their skins through issue of licences. It was amended by section 93(3) of the Wildlife Statute by deleting from all its provisions any reference to crocodiles. The management of crocodiles thus brought under the Wildlife Statute.

The Act provides for the protection of fish by regulating the size of nets, prohibited fishing methods, and makes provisions for conservation through the prohibition of fishing immature fish, declaring closed seasons and regulating vessels of non-citizens from fishing in Uganda without a valid licence. The Act also attempts to conserve fish by prohibiting the introduction of some species of fish or eggs that were not indigenous to Uganda, or the transfer of fish or fish eggs from one water body to another without the consent of the Chief Game Warden. It does not make express provisions for regulating international trade in fish species and should, therefore, be amended to match the present day conservation and management trends in fisheries resources.

1.2 Statement of problem

Natural resource base being one of the Uganda's richest and most diverse in Africa. Uganda's economy and the country's development are strongly dependent on the sustainable management of natural resources and the environment.

85% of the population is highly dependent on natural resource for their livelihood. However, the environment of Uganda is under threat. This threat comes from both natural and human activities including; poverty, rapid population growth, urbanization, agricultural expansion, informal settlement, development, industrialization and the effect of climate variability and change.

The resilience of these ecosystems and its services is crucial for people's lives and livelihoods. It purifies air and water, helps buffer floods, it is responsible for nutrient cycles, decomposes wastes, generates and preserves soils, Located between the tropical high forests of Congo and the savannas of East Africa, Uganda has got a variety of ecosystems such as forests, wetlands, rangelands, open water bodies, agricultural landscapes and wildlife protected areas.

Biodiversity services and provisions to plants such as pollination, food and fiber production creates possibilities for recreation.
However humans have contributed to the rise of Key environmental challenges in Uganda which includes Land degradation: Land degradation is widespread and is the result of unsustainable farming and a growing fuel wood demand. The growing population pressure causes farmers to farm increasingly marginal land that is especially prone to land degradation. The demand for fuel wood decreases vegetation coverage which results in over exploitation of flora.Other causes are overgrazing and soil erosion

Deforestation: The deforestation rate in Uganda is very high (2.3 %), well above world and sub-Saharan average (0.6 %)The growing population puts high pressure on the forests. The largest cause of deforestation is transformation of forestland in to other land uses, mainly agricultural expansion. The high demand for fuel wood is also a driver of deforestation.

Uganda depends on fuel wood for over 90 per cent of its energy consumption. Forest cover decline is most noticeable in privately and communally owned forests.

Declining water resources: Evaporation rates are generally high in Uganda and exceed precipitation in 90 per cent of the country. This reduces run off, groundwater recharge and dry season stream flow. Declining water resources are a result of erosion, deforestation, unsustainable abstraction from groundwater resources, wetland degradation and pollution. The frequency of drought and the gravity of following impacts have increased.

Trans-boundary water: Lake Victoria is a shared trans-boundary resource of Kenya, Tanzania, and Uganda. Rwanda and Burundi are a part of the upper watershed that drains into Lake Victoria through the Kagera River. The Lake is part of the Nile River Basin system, which is shared by ten countries: Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Eritrea, Kenya, Rwanda, Sudan, Tanzania, and Uganda. Environmental degradation of the lake leads to reduced fish stocks, decline of biodiversity that is both aquatic and terrestrial, increased sedimentation and nutrient loads, resulting in eutrophication, increased wastes from industrial, municipal and mining activities, destruction of wetlands and loss of littoral habitat, and variable water levels, loss of biodiversity and wildlife due extensive agriculture, urbanisation, poaching and encroachement.

The Ugandan, government has put in place an institutional, legal and policy framework to manage the efficient use and governance of these natural resources base and biodiversity present, there is the National Environment management Policy (1994), Uganda Forestry Policy (2010), the Energy Policy for Uganda (2002), National Environment Act (Cap 153), National Forestry and Tree Planting Act (Act 8 of 2003), etc. However, the level of compliance to these environment and natural resources policies, laws, regulations and standards is still very low leading to misuse and degradation of the environment.

It's my hope that this research will help bring out clearly for the government, stakeholders as well as other governing bodies NGOs and the general public the impacts of these laws on biodiversity conservation in Uganda as well as pin point the challenges, loopholes and the necessary issues to be addressed in order to ensure proper and efficient implementations and workings of these laws to ensure proper management of conflicts and to make sure our natural resources are conserved for both present and the future generation.

1.3 Purpose and Objective of the study.

The main purpose or Objective of this study was to investigate whether the laws that has been promulgated or passed towards biodiversity conservation were being implemented or enforced, and what is the impacts of such environmental laws towards wildlife conservation in South Western Uganda.

1.4 Specific Objectives of the study

The research was guided by the following specific objectives:

- To find out the various environmental laws and policies being implemented for biodiversity conservation in Uganda.
- To find out the positive impacts of environmental laws on biodiversity conservation in Uganda.
- To find out the negative impacts of environmental laws in biodiversity conservation in Uganda.
- To find out the strategies that can be employed to strengthen the implementation or enforcement of environmental laws and policies for biodiversity conservation.

1.5 Research question

- What are the various environmental laws and policies being implemented for biodiversity conservation in Uganda?
- What are the positive impacts of environmental laws and policies on biodiversity conservation in Uganda?
- To find out the negative impacts of environmental laws and policies on biodiversity conservation in Uganda?
- What are the likely strategies that can be employed to strengthen the implementation of environmental laws and policies in Uganda?

1.6 Significance of the study

The research findings will be of help in the following ways:

- It will boost conservation workers in management planning, implementing environmental laws and policies for biodiversity conservation to protect, preserve and con serve the much needed plants and animal species for medicinal and ecosystem services
- The findings will also help conservationist in designing of strategies for community involvement in implementing environmental laws and policies for biodiversity conservation
- The findings from the research will further help the government and stakeholders in strengthening of institutions to enhance society's ability in biodiversity conservation through community empowerment of the local people to discourage environmental degradation
- The research findings will help policy makers to develop laws and policies that promote biodiversity conservation and ways of implementing these policies.
- The findings will be helpful to other researchers on literature review for their research as well as other educational presentations..
- The research finding will further help NGOs and donor agencies especially those interested in biodiversity conservation.

1.7 Scope of the study

The research study covered the subject scope, geographical scope, and time scope.

1.7.1 Subject scope

The study focused on environmental laws and policies and their impacts on biodiversity conservation both negative and positive plus the likely strategies that can be employed to strengthen and implement these laws and policies to promote biodiversity conservation. Environmental law or environmental and natural resources law is a collective term describing the network of treaties, statutes, regulations, and common and customary laws addressing the effects of human activity on the natural environment. Impacts on the other hand refer to any effect or effects that arise from a particular activity or sets of activities. Biodiversity conservation refers to the wise use of natural species of lives to carter for the needs of present and future generations.

1.7.2 Geographical scope

The research was carried out in south western and western regions of the country which is one of the most biodiversity rich regions, fast developing and most populated regions with at least 1000 people per square kilometer in the districts of Mbarara ,Kanungu , Rukungiri and Kabale.

1.7.3 Time scope

The research was carried out for six (6) month that is started from June 2017 up to Augast 2017. This is to enabled me adequate data collection time.

1.8 Conceptual framework

This is defined as the schematic presentation of variables on the topic under study and their relationships. This is as illustrated below.

Independent variable **Dependent variables**

Environmental laws and policies **Biodiversity conservation**

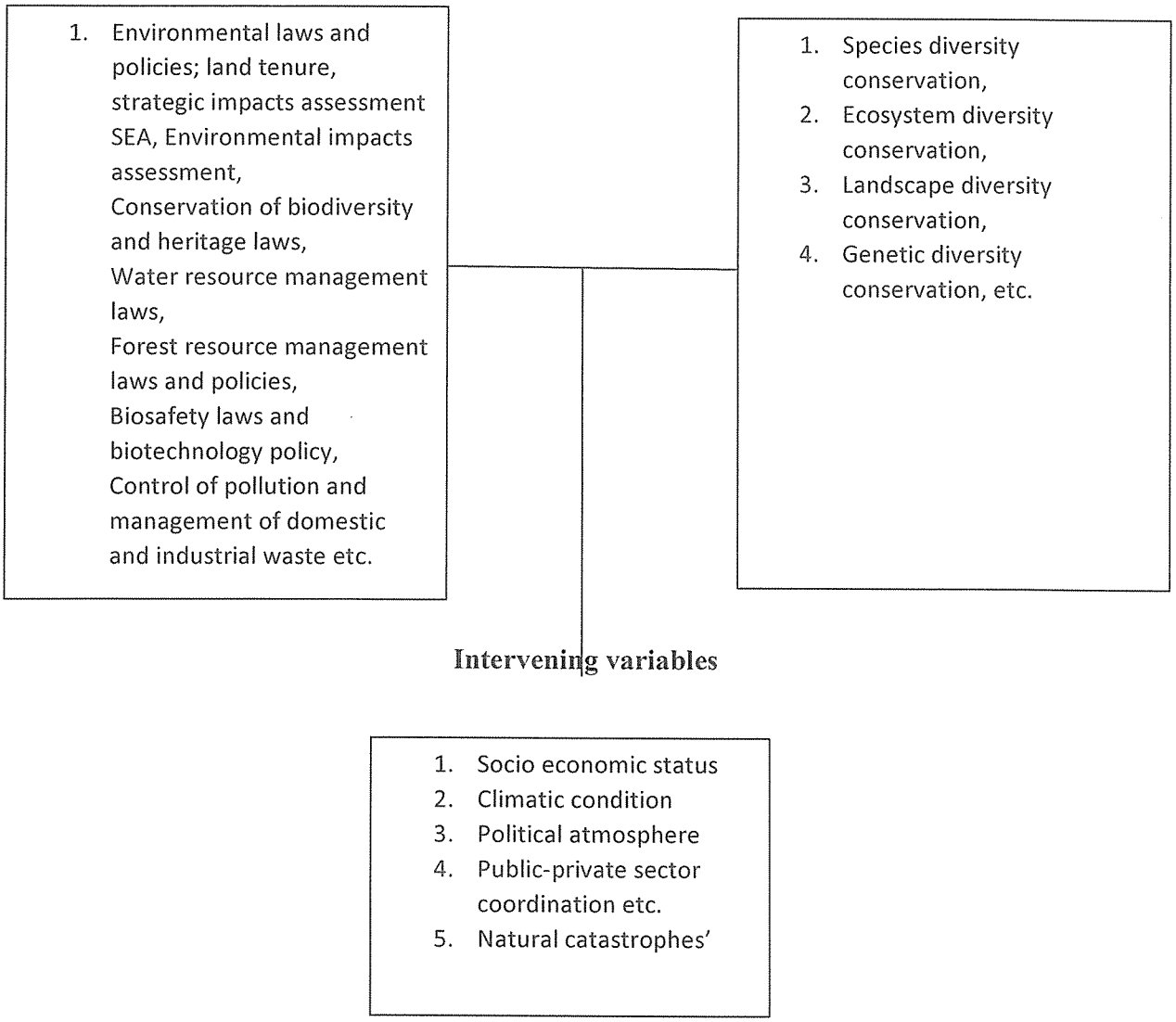


Figure 1: Conceptual frame work

CHAPTER TWO
LITERATURE REVIEW

2.1 RELATED LITERATURE REVIEW AND SURVEY ON BIODIVERSITY IN UGANDA

The word biodiversity was coined in the mid-1980s to capture the essence of research into a variety and richness of life on earth. The word is now widely used; its rapid establishment in science and popular culture is an indication of the importance of the topic but also a source of confusion. First biodiversity is the richness and variety of life on earth the flowers, insects bacteria forests animals, and coral reefs are all biodiversity second biodiversity is an area of scientific research including both description and measures of diversity and explanations of how diversity is created. Biodiversity has been increasingly used as a conceptual focus for conservation policy and practice in response to one of the strongest themes underpinning the funding work on biological diversity, species extinction, and ecosystem loss brought to global prominence by Rio summit on 5th /6/1992. The variety of life on earth can be investigated at different levels. Genetic variation, species numbers and the extent of ecosystems. Nature's creative and destructive forces include ecological and evolutionary processes. However current degradation of biodiversity is driven by human pressures and conservation responds with protective laws, reserves and refuges in captivity.

Over 80% of the population in Uganda depends on subsistence agriculture for their livelihoods. Biodiversity is estimated to contribute about $1billion million in Uganda per year in monetary, non-monetary and informal sectors, and through provision of ecological services. In terms of energy, only about 8% of the population of Uganda now estimated at about 33 million have access to use electricity, the rest of the population are dependent on firewood biomass. It is estimated that between16 to 18 million tones of firewood are consumed annually as domestic firewood while another 4 million tones of charcoal are consumed annually. The annual production value of wetlands range between $300-600 per ha while the purification and carbon sequestration is estimated at about US10, 000 per ha. The contribution of wetlands in purification

of water runs in millions. For example Nakivubo wetland in Kampala alone contributes about US$1.7 million annually to the economy as tertiary wastewater treatment. (NEMA, 2009).

2.2 Uganda's obligation on biodiversity conservation at international level.

Uganda is a Party to the Convention on Biological Diversity (CBD) and the Cartagena Protocol on Biosafety. Uganda signed the CBD on 12thJune 1992 and ratified it on 8th September 1993. As for the Cartagena protocol, Uganda signed the protocol on 24 May 2000 and ratified it on 24thNovember 2001.

The CBD has three objectives: Conservation of biological diversity, sustainable use and equitable sharing of the benefits arising from the utilization of Genetic Resources.

The objective of the Cartagena Protocol on Biosafety is to ensure adequate levels of protection in the field of the safe transfer, handling and use of Genetically Modified Organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health.

Uganda is also a Party to the following biodiversity related Conventions and agreements:

CITES - Uganda ratified the convention on 18th July 1991 and acceded to it on 16th October 1991).

Ramsar Convention on Wetlands - Uganda signed the Convention on 4th March 1988 and ratified it on 4thJuly 1988.

The Lusaka Agreement on Cooperative Enforcement Operations directed at Illegal Trade in Wild Fauna and Flora. Uganda signed it on 8th September 1994 and ratified it on 12th April 1996.

UNCCD - Uganda signed the agreement on 21st November 1994 and deposited the instrument for ratification on 25th June 1997.

UNFCCC - Uganda signed the Convention in June 1994 and ratified in September 1997.

Convention on the Protection of the World Cultural and Natural Heritage -Uganda ratified it on 20thNovember 1987. Uganda is obliged to implement the above Conventions and agreements.

2.3 The legal frame work for biodiversity conservation in Uganda.

A. The Constitution of the Republic of Uganda (1995)

Objective XIII of the Constitution requires the State to protect important natural resources, including land, water, wetlands, minerals, oils, fauna, and flora on behalf of the people of Uganda.

Objective XXVII on Environment provides for the State, including local governments to promote the rational use of natural resources so as to safeguard and protect the biodiversity.

Article 39 provides for the right of every Ugandan to a clean and healthy environment.

Article 237(2)(b) requires Government or a local government to hold in trust for the people and protect natural lakes, rivers, wetlands, forest reserves, game reserves national parks and any land to be reserved for ecological and touristic purposes for the common good of all citizens.

Article 245 provides for Parliament to enact laws intended to protect the environment from abuse, pollution and degradation as well as for managing the environment for sustainable development and promoting environmental awareness.

B. National laws on environment and biodiversity

The National Environment Act Cap 153 (of 1995).

The Land Act Cap 227 (0f 1998) – Section 44(1) gives effect to Article 237 (2)(b) Of the constitution.

The Uganda Wildlife Act Cap 200 (of 1996).

The Local Government Act 1997.

The Agricultural Seeds and Plant Act (1994).

The National Forestry and Tree Planting Act 2003.

Environment Impact Assessment Regulations, 1998.

Regulations on Access to Genetic Resources and Benefit Sharing 2005.

Regulations on Wetlands, Riverbanks, Lakeshores, Hilly and Mountainous areas (2000).

C. Policy framework & Action plans on biodiversity in Uganda

The National Environment Management Policy (1994) – provides for sustainable social-development. On biodiversity, the Policy objective is to conserve and manage Uganda's biodiversity in support of national social-economic development.

The Decentralization Policy of 1997.

The Wildlife Policy of 1999.

The Forestry Policy of 2001.

The Fisheries Policy 2003.

The National Tourism Policy 2003.

The National Biotechnology and Biosafety Policy (2008).

The National Biodiversity Strategy and Action Plan (2002).

The National Forest Plan (2001).

The Wetlands Sector Strategic Plan (2001).

The National Development Plan.

D. The National Development Plan and the Environmental Objective 723 of NDP on the Environment is to restore degraded ecosystems (wetlands, forests, rangelands and catchments) through: Afforestation, re-forestation, tree planting, and enhancing private sector involvement.

Objective 724 of the NDP is to ensure sustainable management of environmental resources through:

Integration of environment concerns in the development initiatives.

Strengthening policy and legislative framework.

Developing national and international partnership for trans-boundary management of shared natural resources/ecosystems.

Promoting compliance to environmental laws, increasing public awareness.

Objective 725 of NDP on the Environment is to identify and address emerging environmental issues and opportunities through:

Developing a policy on waste.

Sustainable management of the Oil and Gas sector for example through development of a Strategic Environmental Assessment (SEA) and building capacity in managing the environmental challenges for the oil and gas sector.

On Climate Change, Objective 731 provides for the development of national capacity for coordination and implementation of climate change mitigation and adaption activities in Uganda through:

Strengthening the mandate and capacity of the Climate Change Unit in the Ministry of Water and Environment.

Putting in policy a national climate change policy.

Implementing the NAPA for Uganda.

Objective 733 of the NDP calls for a Low Carbon economic development path through promotion of initiatives for clean development and building the capacity of the private sector to participate in clean development initiatives among others.

2.4 Institutional arrangement for biodiversity management in Uganda.

National Environmental Management Association provides overall coordination (including implementation of the Convention on Biological Diversity) while the respective Government agencies are responsible for day to day implementation of activities on conservation and management of biodiversity.

The Technical Committee on Biodiversity Conservation.

Department of Fisheries resources – management of fisheries.

Uganda Wildlife Authority – Wildlife Management (10 National Parks, 12 Wildlife Reserves).

National Forestry Authority – Forest Management –Central Forest Reserves

(506). National Agricultural Research Organization – Plant Genetic Resources, research on biodiversity.

Academia – Research, training of personnel.

Local governments - environment and natural management within their jurisdiction- e.g. Local forest reserves, wetlands etc.

The Private Sector and Non-Governmental Organizations are also involved in biodiversity conservation.

2.5.0 Status of global biodiversity.

An estimate of 40% of the bird population in the world are threatened and are declining. The Millennium Ecosystem Assessment concluded that 60% to 70% of ecosystem services are being degraded faster than they can recover.

The cost of failure to halt biodiversity loss on land alone in the last 10 years is estimated at US$500 billion. (EA report 2010)

About 50% of the known 52,000 medicinal plants in the world are threatened with extinction.

Since 2000, 6 million hectares of primary forest have been lost each year.

The annual loses as a result of deforestation and forest degradation is estimated at US$ 2 trillion. About US$45 billion is needed for mitigating deforestation and forests degradation. (UNEP et al, 2009)

2.5.1. Status of biodiversity conservation in Uganda.

Four ecosystem services are critically stressed in Uganda:

Maintenance of biodiversity, Food and fiber provision, Water supply, purification and regulation and finally Fuel provision.

Uganda is estimated to be losing its forest cover at a rate of 80,000 ha per year – implying the ecosystem services associated with the forest are also lost.

In 1890 forests and woodland covered approximately 45% of the total land area, and is now estimated at 20%. About 30% of the tropical high forest now degraded. (UNEP, 2008)

Soil erosion and land degradation are becoming more pronounced in the country. Rivers are getting more silted. Recent estimates of costs of natural resource degradation in the country are put at 17% of the GDP of which 11% is constituted by soil degradation. The annual economic value of soil nutrient loss is estimated at US $ 625m.

Uganda is now estimated to be losing 80,000 ha of its forest cover annually. The biggest loss is in the private forests and forests on communal lands (which is 70% of the total forest cover in the country). Deforestation and rangeland degradation is estimated to costing Uganda US$ 1.8 million and US$ 400 million while loss of wildlife is estimated at US$ 26 million annually. (NEMA, 2009)

2.5.2 Challenges on biodiversity conservation in Uganda.

According to (NEMA, 2009) the challenges on biodiversity conservation in Uganda are challenges of Securing adequate financial resources for implementing biodiversity conservation activities, balancing biodiversity conservation with poverty eradication and national development, restoring degraded ecosystems and species, halting destructive use of biodiversity, supporting community based activities that enhance biodiversity conservation for example tree planting, management of invasive alien species, Building adequate capacity for managing issues on climate change and biotechnology, strengthening awareness and enforcement, strengthening private sector involvement, information sharing and management.

2.5.3 Opportunities for biodiversity conservation in Uganda.

Policy, legal and institutional frameworks exist. Global concern on halting biodiversity loss (CBD COP10) has put the deadline at 2020. Financial resources expected from Developed Countries and the GEF.

Funding opportunities under REDD+ under Climate Change and Payment for Ecosystem Services (PES) is expected to help local communities conserve biodiversity on their lands.

National Development Plan has provisions on environment and climate change. This provides a framework for funding the environment sector.

Growing interest in biotechnology is providing a window for funding.

GEF through UNEP has provided funding for establishment of CHM.

Global concern on halting biodiversity loss (CBD COP10) has put the deadline at 2020. Financial resources expected from Developed Countries and the GEF.

Funding opportunities under REDD+ under Climate Change and Payment for Ecosystem Services (PES) is expected to help local communities conserve biodiversity on their lands.

The National Development Plan has provisions on environment and climate change. Government funding to the environment is therefore expected to continue and also to increase with time

2.5.4 Forest biodiversity in Uganda.

Statistically, Uganda's forests cover was estimated at 3,556,000 hectares in 2011, which is 17 percent of the total land area of the country (UNDP/NEMA/UNEP, 2009). This is a reduction from the 4.9 million hectares in 1990 which is 24% of Uganda's total land area (SPGS, 2007). Forests on private land constitute 64% of

Uganda's forest cover which is a reduction from 70% in 1990. Inside protected areas, forests reduced from 1.47 million ha to 1.3 million ha; a difference of about 200,000 ha. The total (inside and outside protected areas) deforestation rate has gone up to 1.8% per year. For instance MAAIF has estimated that 70,000 hectares are lost every year and World Bank has indicated the degradation rates to be between 1-3% annually. At this rate all privately owned forests and woodlands could be converted within 62 years and with higher rates of deforestation, the conversion period would be 17 years (UNDP, 2005).

CHAPTER THREE

RESEARCH METHODOLOGIES

3.0 Introduction

This chapter describes the techniques and procedures which were used by the researcher in conducting the study and accumulating the data from this study. They comprised of the description of the study population, sampling techniques, sample size, sources of data, method of data collection and method of data analysis and testing hypothesis.

Methods referred to techniques were used to portray the wanted results. For this case the methods used included; observations, questionnaires, interviews, and equipments such as note books and excel, in data collection.

3.1 Research design.

The study was carried out using cross sectional survey design, a data collection method that incorporate both the use of interviews and questionnaires methods basing on the use of qualitative and quantitative approaches that is adopted to establish the impacts of environmental laws on biodiversity conservation. The design was used for profiling, defining, segmentation, estimating, predicting, and examining associated relationships.

3.2 Study population.

The population used in this study covered about 60 respondents including leading environmental activists, citizens of various villages people from various non governmental organizations ,and leading government stakeholders, policy makers and implementers in the field of biological resources conservation in Uganda.

The population sample was designed to obtain adequate and diverse views of people on the impacts of environmental laws on biodiversity conservation. At least 30 males, 20 females and about 10 different key informants were consulted.

3.3 Sampling design

The study mainly used two sampling methodologies. These are stratified sampling and simple random sampling methodologies. Stratified sampling is a method of sampling that involves the division of a population into smaller groups known as strata (Trochimand William 2006).

Simple random sampling is defined as any sampling that ensures that all possible variables within a given sample size have the same probability of being selected. Alternatively one can say that every element of the population have the same probability of being selected for inclusion in the sample in one extraction.

In this sampling method, the probability, Pi, of selecting an element, I, from a finite population of size N, is;

$Pi = 1/N$

There are two ways to take a simple random sample; either the elements are selected with replacement of the element into the population after each extraction, or without replacement.

For the purpose of this research, the sample is selected without replacement and those who miss to respond were considered as non-respondents.

3.4 Sample size

The sample size used in this study consisted of 60 respondents. This sample size is assumed for research to be enough representatives of the entire population.

3.5 Sampling procedure.

Here the population were divided into groups basing on relevant characteristic such as gender , age group, culture, occupation and level education among others and then selected participants within those groups. Stratified random sampling had also been use to ensure adequate representation of both males and females.

respondents in the community. The questionnaire consisted of both open and closed ended questions administered to respondents.

3.8.2 Interviews.

The data was also be collected through administering interview guided as data collection tool. An interview is a dialogue between an interviewer and interviewee. It is an organized conversation aimed at gathering data about a particular topic. This is a method where a researcher interviews respondent to obtain information on the issue of interest. In this case, the interviews during this research will specifically be administered to selected respondent.

3.8.3 Observation.

Observation is the basic method of getting into about any event. It becomes a scientific a tool for research when observation is used in a systemic manner with a scientific attitude. It implies accurate watching of events as they occur in nature with regard to cause and effect relationship. In observation the researcher will go to places where the events will be taking place and record the findings. Observation involves seeing something without altering it or any variables involved. Here the researcher will just record what he observe without interfering with it in such a way that the outcome might not be changed. This will provide qualitative data.

3.9 Data processing analysis and presentation

3.9.1 Data processing.

Data was collected and checked for completeness, categorized, coded and entered into a computer where it was be summarized into frequency tables, pie charts etc.

3.9.2 Data analysis

The data was analyzed using statistical package for social sciences (SPSS). Linear correlation index was used to correlate impacts of environmental laws on biodiversity conservation. The index was simply selected because it will help to measure the degree and direction of the relationship between variables.

3.9.3 Data presentation.

Quantitative data was presented in form of descriptive statistical frequency tables and pie charts. Qualitative data was sorted and grouped into themes. The researcher thereafter evaluated and

analyzed the adequacy of information in answering the research questions through coding of the data, identifying categories and parameters that had emerged in the responses to the variables of the study. Qualitative data was presented using narrative text.

4.0 Ethical considerations

A professional ethical conduct was the key issue while conducting this research through the following strategies.

Before I undertook the study a copy of the research proposal was submitted to the University in the Department of biological and environmental Studies through my individual research supervisor for approval therefore the proposal was reviewed and the tools evaluated to ethical considerations.

Respondents were asked to participate in voluntarily in the study that is they were free not to answer any question that they a not comfortable with this further promoted respondents right to self-determination.

The research study maximized respondents confidentiality through use of questionnaires which did not indicate respondents names and protecting their rights for instance through explaining to them the purpose and benefits of the study.

CHAPTER FOUR.

PRESENTATION, INTERPRETATION AND DISCUSSIONS.

4.0 Introduction.

This chapter presents the finding of the study, i.e, impacts of environmental laws on biodiversity conservation in the South Western part of Uganda. The findings are presented in different sections related to specific objectives of the study namely; to find out the positive impacts of environmental laws on biodiversity conservation in south western part of Uganda, to find out the negative impacts of environmental laws on biodiversity conservation in the south western part of Uganda, to find out the strategies that can be employed to strengthen the implementation of environmental laws and policies on biodiversity conservation in Uganda. The chapter begins by describing the demographic characteristics of the respondents and later focuses on the different specific objectives in their order as listed above.

4.1 Background characteristics of respondents.

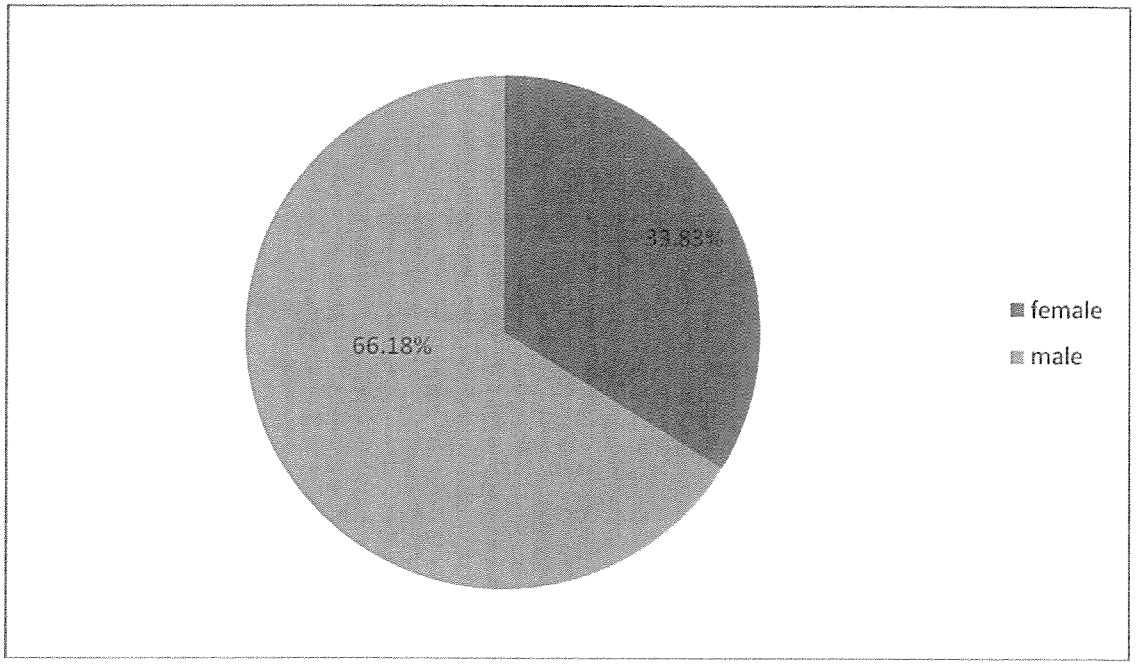
The information about the background characteristics of respondents in south western Uganda is presented in this section. It includes; sex, age, marital status, education level and current occupation among others. In the first instance, the study was conducted among 88 respondents from south western Uganda.

4.1.1 Respondents by sex.

Sex of the respondents was one of the background characteristics considered in this study. This was because it was believed that people of different gender utilizes and affect the environment differently. As a result questionnaires were administered to both male and female respondents. Figure 1 below shows the proportion of respondents involved in this study by sex.

4.1.2 Respondents by age.

Age of the respondent was also one of the background characteristics considered in this study. This was because it was believed that people of different age group affects the environment and understands the laws governing the environment differently. As a result questionnaires were administered to people of different age group.



Source: Field Data, 2017.

Figure 1: showing the sex of the respondents.

According to the figure 1 above 33.82% of the respondents were female and male constituted a greater percentage 61.18% which was reached at due to the few response got back from the female respondents compared with their male counterpart. Female respondents were found not to be a bit open in giving their views and very few questionnaires were returned from them as they seems too busy with other domestic counterparts. Male respondents were found to be more responsive and more open and knowledgeable if it comes to answering questions related to the environment. Since both sexes were represented at least fairly well this implies that the information was reliable, and unbiased on both females and males.

Table 4.1 shows the respondents by age.

Age.	Frequency n=68	Percentage (%)
18-25	3	4.4
26-30	11	16.2
31-35	18	26.5
36-40	25	36.8
41-45	6	8.8
46 years and above.	5	7.4

Source: Field Data, 2017.

From the table 4.1 above, majority 36.8% of the respondents were aged between 36-40 years, 26.5% were aged between 31-35 years and 16.2% were aged between 26-30years and the least respondents were aged between 46 years and above. Thus the biggest percentages of the population in the study were mature thus the information got is valid and reliable.

Table 4.2: showing level of education of respondents.

Level of education	Frequency (n=68)	Percentage (%)
Primary	26	38.2
Secondary	26	38.2
Tertiary/ university	11	16.2
None	5	7.4
Total.	68	100.0

Source: field Data, 2017

As illustrated in table 4.2 above, the least 7.4% of the respondents did not have any formal education and majority 38.2% had attained primary and secondary education. This implies that the respondents understood the study and provided valid and reliable data.

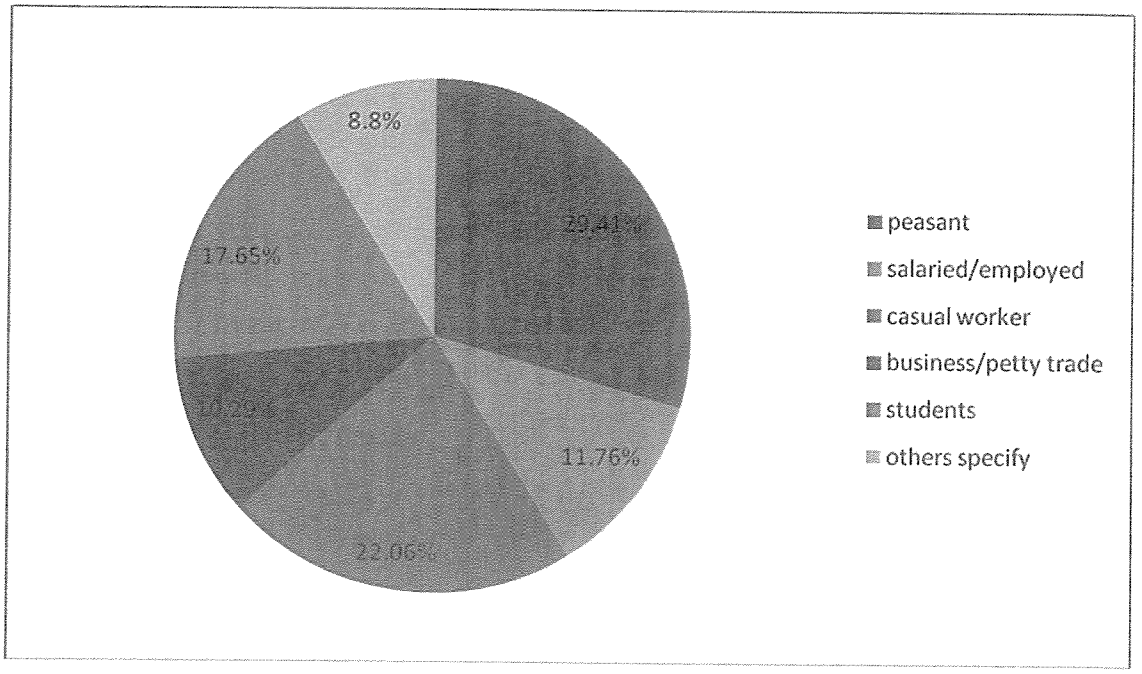


Figure 2: showing the occupation of respondents.

Figure 2 show the majority 29.41% of the respondent were peasants/farmers followed by casual laborer and the least 8.8% others.

Table 4.3: showing whether the respondents know the laws governing the utilization of the environment and all the biological and other resources therein.

Response.	Frequency n=68	Percentage %
Those with deeper knowledge	30	44.12
Those with fair knowledge	38	55.89

Source: field data 2017.

The table 4.3 above shows that fairly almost equal distribution among the percentage of the respondents who had deeper knowledge about the environmental laws and those with fair knowledge on the subject.

Table 4.4: show the positive impacts of environmental laws the respondents have ever noted.

Response	Frequency n=50	Percentage %
Generate revenue through tourism	17	25
Conservation of rare species diversity through environmental protection; soil and water quality.	12	17.6
Socio economic development of local people through increased household income	13	19.1
Other benefits	8	11.8

Source: field data, 2017.

Table 4.4 above shows that the majority 21.3 percent of the respondents revealed that environmental laws have greatly promoted conservation of biological resources vital in attracting tourist that earns revenue to the region through tourism and related activities 19.1 % revealed that environmental laws have contributed to maintaining of water and soil quality and overall quality of ecosystem through discouraging environmental degradation that may arise from poor land use practices, environmental pollution and environmental misuse. This implies that the positive impacts of existing environmental laws on biodiversity conservation ranges from economical benefit to environmental quality, social infrastructural development, and so on. The findings are similar to the sentiments of the respondent, who said,

''**Enforcing environmental laws in the protected areas of Bwindi impenetrable national park and other parks in western part of Uganda have help to protect most of the rare animal species such as gorilla and other species which are rift valley and bird species which are rift valley endemics in East Africa such as the great Blue Turaco, and also protect the heritage sites in the country''.** Conservation area manager Bwindi impenetrable national park.

This implies that most people see the benefits of employing environmental laws.

Table 4.5: showing the negative impacts of environmental laws on biodiversity conservation.

Negative impacts response	Frequency n=11	Percentage %
Human wildlife conflicts	4	33.3
Denied access to resources for raw material and food etc	3	25.0
Loss of lives and property	2	16.7
Fuels negative attitude towards conservation authorities and law enforcers	3	25.0

Source: field Data, 2017

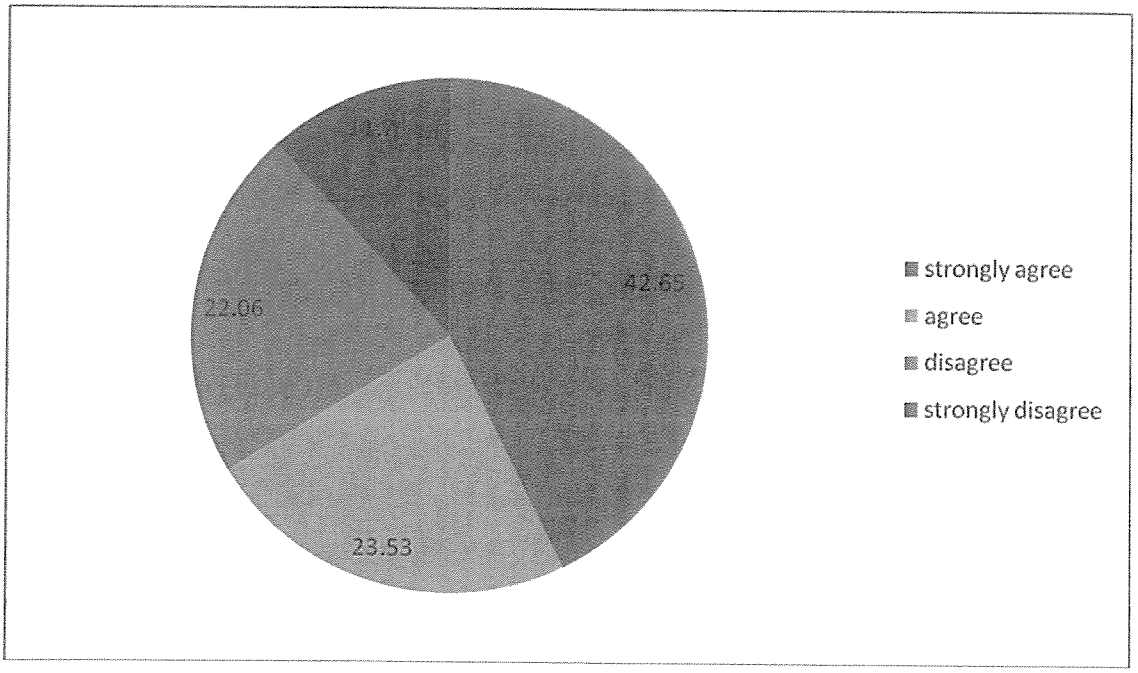
Table 4.5 above indicates that majority of the respondents 33.3% revealed that the greatest negative impact of environmental laws is that it fuels human wildlife conflicts where the law protects wildlife more than human life, other respondents indicated that environmental laws denies people from accessing vital resources necessary for survival such as food and raw materials and are implemented against the will of the local people. This is captured from one of the respondent, who said,

That'' **the government protects these animals and resources and doesn't even think of us people who are suffering from the damages caused by these animals take for example**

elephants who raids our crops and also lions who eat our live stocks yet when we killed these animals we are taken to prison and are always never even compensated yet we are also human beings who have families to take care of '' a male respondent from a village neighboring lake Mburo national park.

This implies that implementation of environmental laws also fuels human-wildlife conflicts and also conflicts between the local people and conservation authorities especially when people are exclusively denied access to the protected areas

Figure 4: shows whether protecting the environment from exploitation by the local people leads to poverty.



Source: field data 2017.

From figure 4 above, 42.65% of the respondents strongly agree that environmental laws that stops that killing of problems animals promotes poverty especially among the subsistence farmers whose crops are raided seasonally and are never compensated, 23.53% agreed, 11.7% disagreed. This implies that some environmental laws are unfavorable to the local communities surrounding the protected areas especially those practicing subsistence farming and small scale

lives tocks rearing, whose property are damaged by wildlife and are not compensated. Thus promoting poverty among the local communities.

4.6 The strategies that are being employed to cope with strengthen and improve on the fairness, the implementation of environmental laws and policies for biodiversity conservation.

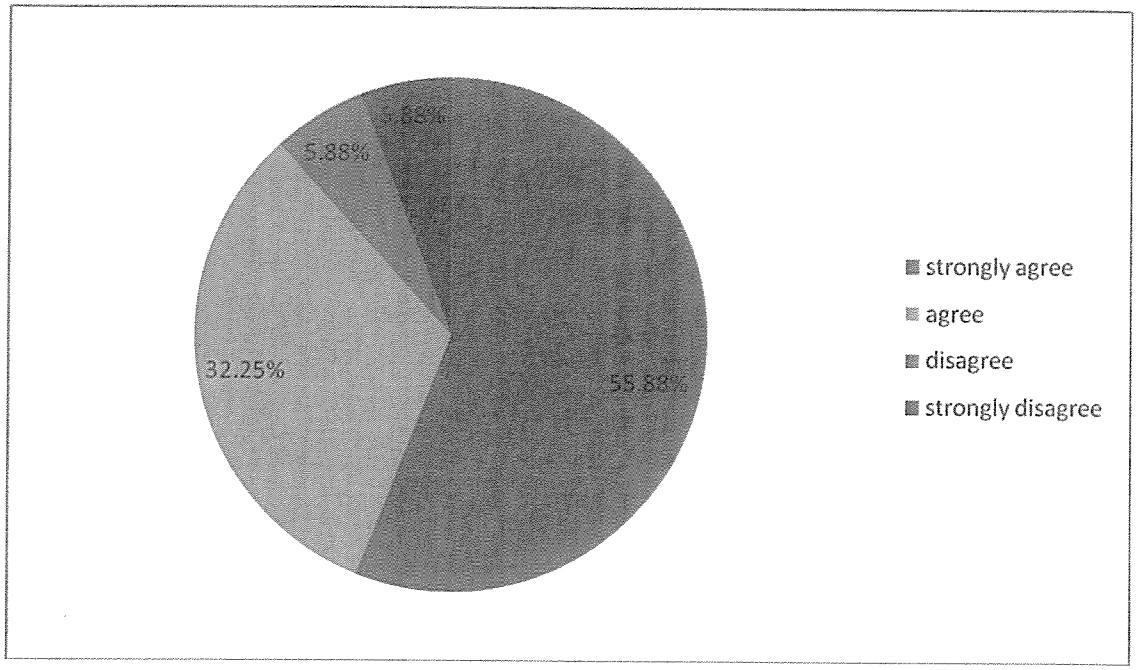
Table 4.6: whether there is need to modify the existing environmental laws to improve on its fairness to the local people.

Response	Frequency n=68	Percentage %
Strongly agree	41	60.3
Agree	17	25.0
Disagree	7	10.3
Strongly disagree	3	4.4

Source: field data, 2017.

From the table above majority of 60.3% of the respondents strongly agreed that there are needs to modify the existing laws to put into considerations the people in the communities surrounding the protected areas, people should be allowed to sustainably exploit natural resources in the protected areas, 25.0% agreed, 10.3% disagreed and at least 4.4% of the respondents strongly disagreed. This implies that modifying environmental laws to favor the local people in south western Uganda helped and ensures its effectiveness and success especially in areas where collaborative management of natural resources are employed.

Figure 3: whether improving access of farmers to insurance for their damaged crops improved their collaboration with conservation authorities in implementing environmental laws for conservation of biodiversity and reduced the negative impacts of implementing these laws on socio economic development of the neighboring communities



Source: field Data, 2017.

From the figure 3: above majority 55.88% of the respondents strongly agreed that improving farmers access to insurance cover for their damaged crops and property improved their collaboration with conservation authorities in implementing environmental laws for biodiversity conservation and has also helped reduced on the negativities arising from implementing these laws, 32.25% agreed, 5.88% disagreed and 5.88% strongly disagreed. This implies that improving farmers' access to insurance cover for damage caused by problem animals to their crops, lives and property was one of the coping methods used to improve their collaboration with conservation authorities in implementing environmental laws for biodiversity conservation in south western Uganda. In fact it had also help in improving socio economic status of the local people as they collaborate with conservation authorities in implementing environmental laws, since people are compensated incase of damage thus reducing cases of total loss.

Table 4.7: seeking governmental and nongovernmental support in creating peoples' awareness on environmental laws.

Response	Frequency n=68	Percentage %
Strongly agree	39	57.4
Agree	20	29.4
Disagree	5	7.4
Strongly disagree	4	5.9

Source: field Data, 2017.

Table 4.7: indicates that the majority 57.4% of the respondents strongly agreed to seeking governmental and non-governmental support in raising peoples' awareness on existing environmental laws, 35.3% agreed, and 4.4% disagreed and least 2.9% strongly disagreed. The findings are related to a respondent who said that;

"**The people of Bwindi and I think the whole of Uganda have little knowledge about the existing environmental laws here in the country and people breaks this laws unknowingly and when caught and taken to court they blame the government for being against them. There are government parastatal that have been put in place for enforcing environmental laws and promoting biodiversity conservation, the government is therefore mandated to make the laws known to people.**" Tour guide Bwindi impenetrable national park.

This implies that people's knowledge on environmental laws and policies depends on the government effort to make them known.

Table 4.8: showing sensitizing the local people on the existing environmental laws and policies, dangers of environmental degradation and how these laws and policies can be implemented best by each and every individual.

Response	Frequency n= 68	Percentage %
Strongly agree	45	66.2
Agree	18	26.5
Disagree	3	4.4
Strongly disagree	2	2.9

Source: field Data, 2017.

Form the table 4.8 above majority 66.2% of the respondents agreed that there is need to sensitize the local people on the existing environmental laws and policies to improve on their implementation, 26.5% agreed 4.4% disagreed, and the least 2.9% strongly disagreed. This implies that the people living in communities neighboring protected areas in south western Uganda are not fully aware of environmental laws and policies, there is therefore need to sensitize the local people.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.0 Introduction.

This chapter discusses the findings, draws conclusions and recommendations. The objectives of the research were to find out the positive impacts of environmental laws and policies on biodiversity conservation, to find out the negative impacts of environmental laws on biodiversity conservation, and to find out strategies that can be implemented to strengthen the implementation of environmental laws and policies for biodiversity conservation in the south western part of Uganda.

5.1 Discussion of findings.

5.1.1 Knowledge of the people on the existing environmental laws and policies

There was fairly and almost equal distribution among the percentage of the respondents who had deeper knowledge and those with fair knowledge on environmental laws and policies, with the percentage of those having fair knowledge a little bit higher than their counterpart with deeper knowledge. Respondents with deeper knowledge were people with higher level of education especially those who have attained tertiary level of education in universities and colleges.

5.1.2 The positive impacts of environmental laws on biodiversity conservation.

A majority of the respondents believed that implementing environmental laws and policies have helped in protecting natural resources, unique and rare species diversity and also ecosystems and landscape sceneries that have attracted tourist and tourism activities that have generated large volume of revenue to the government.

A good percentage of respondents also believed that implementing environmental laws have helped in conserving rare species such as gorilla and also environmental protection have promoted maintenance of good soil and water quality.

A number of respondents also said income level of people in the neighboring communities improved where laws discouraging environmental degradation and promoting tourism and its

related activities such as providing accommodation facilities, hotels, foodstuffs, employment as tour guides, tour operators and art and crafts industry. As people engaged in these activities have seen their level of income increased considerably. Therefore these activities diverted their minds from exploiting the environment but rather made them felt the benefit of implementing environmental laws to promote biodiversity conservation for tourism activities to continue.

5.1.3 The negative impacts of environmental laws on biodiversity conservation.

A majority of respondents believed that strict enforcement of environmental laws in some area have promoted human wildlife conflicts as the laws protect wildlife more than human life. Example elephant's attacks on crops land have been rampant though the local people are not allowed to kill these problem animals as a control measures as a result people often clashes with these problem animals rampantly leading to loss of lives. Others resorted to killing these animals illegally thus conflicts.

A percentage of respondents also said implementing strict environmental laws have denied them access to resources that their ancestors have used for years without any problem. Resources like raw materials, herbs and traditional medicines, cultural grounds such as shrines for rituals and also burial ground, this have made people bitter and had turned the local people against conservation authorities and law enforcers.

A number of respondents attributed serious implementation of environmental laws to rampant loss of lives and property since they argued that the laws protects wildlife more than human lives, in cases of attack on humans by wildlife such as lions and attacks on domestic live stocks people are not allowed to kill these animals yet continually they took lives.

According to the study due to poor sensitization on the side of the local people enforcing certain environmental laws always fuels negative attitudes towards conservation authority and laws enforcers and thus hinders community integrated collaboration for natural resources management which in turn have affected biodiversity conservation in south western Uganda.

According to the study a majority of respondents strongly agreed that certain environmental laws that prevent the killing of problem animals promotes poverty especially among the subsistence farmers whose crops were raided seasonally and are never compensated. A small percentage of

the respondents agreed but another percentage of respondents disagreed saying money earned from tourism can be used to elevate poverty among the local people. This implied that a majority of people believed that most of the existing environmental laws and policies are unfavorable and promoted poverty and other respondents said money earned from tourism does not directly comes into individual persons' hands thus cannot elevate poverty at family level. These have made people to further unsustainably exploit biological resources at their vicinity leading to loss of biodiversity.

5.1.4 The strategies that can be employed to strengthen the implementation of environmental laws and policies for biodiversity conservation.

According to the study findings a majority of respondents strongly agreed that modifying existing laws and policies to improve their fairness to the local people would be one of the best strategies to use to improve on the implementation of these laws. These would improve people reception to implement these laws. When modifying these laws the needs of the local people should be taken seriously into consideration if its' to be successfully implemented.

Also a majority of respondents especially farmers agreed that improving their access to insurance cover for their crops and animals in case of damage by problems animals would improve their collaboration with conservation authorities in implementing environmental laws and policies for biodiversity conservation and would also reduce total loss of property in case of damage by problem animals. According to the findings these would also improve on socio economic development of the local communities through compensation in case of damage of property, farmers do not suffers from total loss since insurance companies would compensate them for the portion of property insured by them.

Also according to the findings a majority of respondents agreed that seeking government and nongovernmental support in raising awareness on environmental laws and policies would help in making them known to people and thus would improve their implementation.

According to the findings respondents strongly agreed that the government should make efforts to make these laws known to the local people so that they can be able to act within the laws not them breaking the laws when they are not even aware they are doing so.

The study findings revealed that the local people are not fully aware of the existing environmental laws and policies and there is therefore needs to sensitize the local people on these laws and policies.

5.2 Conclusions.

The study findings revealed that a majority of the respondents said that local people are not fully aware of the existing environmental laws and policies and so they break them unknowingly.

The study findings also revealed that a majority of the respondents sees that implementing environmental laws and policies have helped in protecting natural resources and biodiversity therein, landscapes, ecosystems and sceneries that have attracted tourists and tourism activities that have generated large volume of revenue to the government. These revenues collected from tourism is later injected back to promote conservation work thus environmental laws indirectly promotes biodiversity conservation.

The study findings also revealed that a good percentage of respondents also believed that strict enforcement of environmental laws and policies have led to other negative impacts such as rampant human wildlife conflicts, led to loss of lives and property, denied access to resources that their ancestors have used for years and a majority also believed it has promoted poverty and negative attitude towards conservation authorities and laws enforcers. It also revealed that money gained from tourism does not directly benefits individual members of the society being affected by wildlife conflicts and therefore cannot act as enough incentives for biodiversity conservation.

A majority of the respondents in the study findings revealed that the best strategies to help strengthen the implementation of environmental laws and policies to promote biodiversity conservation are; modifying the existing laws to take into consideration the needs of the local people, improving access of farmers to insurance cover for their crops against damage by problem animals could act as incentives for biodiversity conservation and also promote socioeconomic development by reducing cases of total loss in case of damage to crops and

property, a majority also agreed on seeking government support for sensitization of the local people on the existing environmental laws and policies and sees that it's the responsibility of the government to make these laws and policies known to the people.

Though environmental laws has played a big role towards biodiversity conservation there's still a lot to be done in terms of policy reforms, amendments, and petitions should be allowed to allow public opinion on environmental matters.

No doubt the future is promising it's not too late to conserve biodiversity if the laws are made suitable and implemented effectively, biodiversity conservation can be the only way for sustainable economic development in the region and country as whole.

5.3 Recommendations.

According to the study findings the following recommendations can help in strengthening environmental laws and policies to reduce their negative impacts as well as strengthen the positive one to promote biodiversity conservation in south western Uganda.

There is need to modify the existing laws and policies to put into consideration the development needs of the local people. The local people should be allowed to sustainably use some of the natural resources in the protected areas while under close supervision of the conservation authorities and law enforcement authorities.

There is need to provide incentives to the local people to buy them into supporting the implementation of environmental laws and policies. People should be made to see tangible benefits of biodiversity conservation.

There is need to sensitize the local people on the existing environmental laws and policies to raise their awareness on how they can help in implementing these laws and policies and also how they can act within the laws.

There is need for the government to enact more favorable laws and policies that protects the rights and freedom of people to sustainably use natural resources to achieve their development needs and aspirations.

The government should also strengthen and put in other places institutions that help in solving human wildlife conflict between the local people and conservation authorities amicably. People should be given a fairer hearing.

The government should also strengthen the law enforcement bodies such as the rangers and environmental protection police among others to be able to effectively and efficiently implement the existing laws and policies.

Policy makers should adopt national legislation policies and comply to the international treaties to protect these irreplaceable assets through-

(i) Implementing and enforcement of existing environmental laws and policies.

(ii) Gazzeting of endangered species and their habitats as national parks and nature reserves, Zoos and botanical gardens with restoration programmes.

(ii)Formulation and enacting of laws and policies governing important ecosystems such as swamps, forests, lakes and rivers and comply to international treaties such as restrictions set by CITIES, Convention on Ramsar sites, IUCN with all environmental laws and policies complied to by the public and enforced by the government and state .

5.4 Recommended areas for further studies

Biodiversity loss has a serious implication for continued life and existence on the planet earth this is better captured in the ways of Animashaun 1995-2014.

According to faries-et-al 1998, No environmental crisis will have a more lasting effect than the loss of biological diversity.

Strategic environmental impact assessment as formalized that is systematic and comprehensive processes of identifying and evaluating the environmental consequences of proposed policies plans or programmes together with economic and social considerations (sadler and verhoem1996)

Impacts of climate change on biodiversity conservation.

Leadership, politics and governance on biodiversity conservation.

References

Adriana F. Aguilar Enforcing the right to a Healthy Environment in Latin America, 3 REV.EUR COMMUNITY & INT'L L-215

Anderson Individual Rights to Environmental Protection in India, at 217

Benjamin J. Richardson Environmental law in Post colonial societies: Straddling the Social – Global Institutional Spectrum 11 COLO INT'L ENVTL. L & POL'V 1(2000)

Boyle and Anderson Human Rights Approaches to Environmental Protection

Bradford W. Wyche Tideland and the public trust; application for South Carolina, 7 Ecology Law quarterly No.1, 1978

Celia Campbell – Mohn, Burry Green and J. William Futrell (eds.) Sustainable Environmental Law 1108 (1993)

Cheryl loots; Ass. Prof of law of the Witwatersrand, South Africa Impact of the Constitution of Environment

D.A.R. Williams Environmental Law in New Zealand (1980), 1(noting that the first smoke abatement law was passed by Edward 1[of England] in 1273 prohibiting the use of coal as being detrimental to human health")

Edesio Fernandez Constitutional Environmental Rights in Brazil

Elmen Bray Locus Standi: Its development in South African Environmental Law 158

Ferries R.N.T.W. Ecology and Earth History 1976(London Helm,)

Frank P. Grad Environmental Law (1971), 1.01.

Grad, F. Environmental law 1985 (New York: Mathew Bender).

James Barns 1999 Environmental Law Impacts. Valuing Bio-diversity in Costa Rica

James Cameron and Juli Abouchar, The Precautionary Principle: Fundamental Principle of law and policy for the protection of global environment. Boston college international and comparative law review, vol. XIV No. 1 (1991

Jan Glazewski Environmental Rights and the New South African Constitution

Jonathan Verschuuren: The Constitutional Right to Environmental Protection, n.12

Joseph Sax The Public Trust Doctrine in Natural Resources Law, 68 MICH.L.REV. 471, 473 (1970)

L. Grundlung "The States in International Law of the Principle of Precautionary action" International Journal of Estuarine and Coastal Law 23, 26 (1990)

Lewis-c Managing conflicts in protected areas 1996 Gland (Switzerland) IUCN- The world conservation union

Lynn White Historical roots of our Ecological Crisis, Science 1203 – 07 (March 10 1967)

Martin Law Case study: Public interest litigation in Pakistan 3 REV.ELLR COMMUNITY & INTL ENVTL. L. 268 (1994)

Martin Law The Scope and the limits of Environmental Law in India, 4 REV.EUR Community & Int'l L.15 (1995)

Micheal Blumm Public Property and Democratization of Western Water Law: A modern view of the Public Trust Doctrine; 19 ENVT'L. L. 573 (1989)

Micheal Bothe Right to Healthy Environment in the European Union (forthcoming 2000)

Milada Mirkovic Legal and Institutional Framework and Practices for public participation, indoors to decentralisation: Current Trends and Practices in public participation in environmental decision making in Central and Eastern Europe 377, 396 N.10 (1998)

Okoth- Ogendo & Tumushabe Governing the Environment 123, 145 – 46

Osborne's Concise Law Dictionary

Oxford Advanced Learners Dictionary Oxford University Press

Richard Lazarus The greening of America and the Graying of United States Environmental Law (1999)

Robert Martin and Estelle Feldman Access to Information in developing countries, transparency international working paper, ch-8

Robert Percival et al Environmental Regulation: Law Science and Policy (1992), 103(citing 12 Rich. 2c. 13 of 1338, which prohibited the "throwing of dung, filth or garbage into ditches, rivers, or 160 the waters near any city or borough or town")

Scott W. Reed The Public Trust Doctrine: Is it Amphibious: 1J. ENVTL. L & LITIG. 107 (1986)

Stephen Stee Ecological Rights Advancing the Rule of Law in Eastern Europe, 13 J.ENVTL.L & LITIG 275, 320 – 21 (1998)

The National Environmental Law of Uganda 1995 Act's 85

The National Environmental Law of Uganda 1995 Act's 85

Tim O'Riordan & James Cameron Interpreting the precautionary (ED.J) Principle Earth Scan Publications, 1994

Tumushabe G.W. 1996 sustainable development. Chapter Three

Ved P. Nanda & William K. Ris, Jr. "The Public Trust Doctrine: A viable approach to International Environmental Protection" in 5 Ecology quarterly, No. 2, 1976

World Commission on Environment and Development (WCED) Our Common Future, (Oxford-New York Oxford University Press, 1987).

APPENDIX 1

STRUCTURED QUESTIONAIRES FOR INDIVIDUALS AND THE COMMUNITIES

I am **TUMUHEKI ABEL**, a student of Kampala International University pursuing a Bachelor degree in wildlife management and conservation Biology. I am currently carrying research on "the impacts of environmental laws on biodiversity conservation: a case study of south western Uganda. I humbly request you to spare a few minutes of your busy schedule to fill this questionnaire to enable me accomplish this task. The information that you provide will be treated with utmost confidentiality. Please, answer all the questions by filling and ticking in the appropriate box.

Consent,

Would you mind helping me by answering a few questions?

Yes continue to interview

No thank the respondent and terminate the questioning.

Section A: Demographic Characteristics of Primary Respondents.

No.	Questions.	Response.	Code.	Skip
1	Sex(observe	Male Female.	1 2	
2	How old are you?	18-25years 26-30years 31-35years 36-40years 41-45years 46years and above	1 2 3 4 5 6	
3	What is the highest education you have attained	Primary Secondary Tertiary/ university None	1 2 3 4	
4	What is your current	Salaried/employee Casual worker	1 2	

	occupation?	Business/ petty trade Students Others (specify).....	3 4 5	

SECTION B: I would like to ask you some specific questions about the impacts of environmental laws on biodiversity conservation.

5	How much knowledge do you have on the environmental laws and policies being implemented in your area	Deeper knowledge Fairer knowledge None	1 2 3	If None thank the respondent and terminate the interview. If yes go to 6
6	Have you ever witnessed any positive impacts of implementing these laws and policies in your society?	Protecting biodiversity for promoting tourism that generate revenue for the government. Conserving rare species, ecosystems, soil and water quality. Improved income level of the local people	1 2 3 4	

		through engaging in income generating activities through tourism. Others (specify)…..		
7	Do you know of any negative impacts of implementing environmental laws and policies in your society?	Fuels human wildlife conflicts Denied access to resources their ancestors have used for years, Loss of lives and property Fuels negative attitudes toward conservation authority and law enforcers. Promote poverty through property damage. Others (specify)…	1 2 3 4 5 6	

SECTION C: I would like to ask you some specific questions on the strategies that can be employed to strengthen the implementation of environmental laws to promote biodiversity conservation.

8	What are the things that you think can be done to improve the performance of the existing environmental laws and policies in your society	Modify the laws and policies to accommodate the needs of the local people, Provide insurance cover for property lives and crops, Compensation in case of severe damage, Sensitization of people on the existing environmental laws and policies Others (Specify).....	1 2 3 4 5	

Thank you for your cooperation.

APPENDIX 2: Key informant interview guide.

I am **TUMUHEKI ABEL** a student of Kampala International University pursuing a Bachelor's degree in wildlife management and conservation Biology. I am currently carrying out research on ''the impacts of environmental laws and policies on biodiversity conservation: A case study of south western Uganda. I humbly request you to spare a few minutes of your busy schedule to fill this questionnaire to enable me accomplish this task. The information that you provide will be treated with utmost confidentiality. Please, answer all the questions.

Consent,

Would you mind helping me by answering a few questions?

Yes continue to interview.

No thank the respondent and terminate the interview.

1) Do people in your community have knowledge of the existing environmental laws and policies?
2) Have you ever witnessed any positive impacts of implementing these environmental laws and policies on biodiversity conservation?
3) What are the positive impacts of implementing environmental laws and policies on biodiversity conservation you know?
4) Have you ever witnessed any negative impacts of implementing environmental laws and policies on biodiversity conservation?
5) What are the negative impacts of implementing environmental laws and policies on biodiversity conservation you know?
6) In your opinion, what could be the likely strategies if implemented might help in strengthening environmental laws and policies to promote biodiversity conservation?
7) Do you think adequate information, education and sensitization have been delivered about the existing environmental laws and policies?
8) What can the government and other actors do to strengthen environmental laws and policies to improve its effectiveness in promoting biodiversity conservation

APPENDIX 3: Table for determining the sample size of the population.

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note ''N'' is population size

''S'' is sample size.