

WOLKITE UNIVERSITY



WOLKITE UNIVERSITY

COLLEGE OF SOCIAL SCIENCE AND HUMANITIES

DEPARTMENT OF GOVERNANCE AND DEVELOPMENT STUDIES

**The Role of the Emdeber Catholic Secretariat and Environmental NGOs in Environmental
Protection: A Case Study of Cheha Woreda in Gurage Zone"**

BY

ANTHONYOS ESTIFANOS

**A Thesis Submitted to School of Graduate Studies, in Partial Fulfillment of the Requirements
for the Degree of Master developmental studies in developmental planning and management.**

Major Advisor: TAMIRU BERAFAE (Asst. Professor)

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ANTHONYOS ESTIFANOS ANCHEBI

Major Advisor: Tamiru Berafe (Asst. Professor)

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WOLKITE UNIVERSITY**

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We hereby certify that we have read and evaluated this thesis titled. The Role of EMCS on Environmental Protection: The case of Cheha Woreda in Gurage Zone”. Prepared under our guidance by Anthonyos Estifanos Anchebi. We recommend that the thesis was submitted as fulfilling the requirements for the award of MSc. degree in developmental planning and management.

Tamiru Berafe (Asst. Professor)

Major Advisor

Signature

Date

Girma Senbit (Asst. Professor)

Co-Advisor

Signature

Date

**EXAMINER APPROVAL SHEET
WOLKITE UNIVERSITY**

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As members of the Board of Examiners of the Master of Science Thesis open defense examination, we have read and evaluated this thesis prepared by Anthonyos Estifanos Anchebi and examined the candidate. We hereby certify that the thesis was accepted for fulfilling the requirements for the award of the degree of Master of Science (M.Sc.) in Animal Production.

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I, the undersigned declare that this research is my original work, has not been presented for a degree in any other university and that all sources of materials used for this thesis has been duly acknowledged.

Candidate's Name: _____ Date: _____ Signature: _____

This thesis has been submitted for examination with my approval as thesis advisor.

Advisor's Name: _____ Date: _____ Signature: _____

Co-advisor's Name: _____ Date: _____ Signature: _____

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CBD: Convention on Biological Diversity
CCA: Climate Change Adaptation
CFCs: Chlorofluorocarbons
CRGE: Climate Resilient Green Economy
CRV: Central Rift Valley
DRMFSS: Disaster Risk Management and Food Security Sector
DRR: Disaster Risk Reduction
ECSNCC: Ethiopian Civil Society Network on Climate Change
EMCS: Emdeber Catholic Secretariat
EPA: Environmental Protection Agency
Ethio-EIN: Ethiopian Environment Information Network
ICLEI: International Council for Local Environmental Initiatives
IPCC: Intergovernmental Panel on Climate Change
MoEF: Ministry of Environment and Forest
NAMAs: Nationally Appropriate Mitigation Actions
NAPA: National Adaptation Programme of Action
NGO: Non-Governmental Organization
OECD: Organization for Economic Cooperation and Development
SLM: Sustainable Land Management
UNFCCC: United Nations Framework Convention on Climate Change

ABSTRACT

The need to protect the environment is unavoidable. Every entity and being, whether at the institutional, local, regional, or national level, has a responsibility to defend it. In order to preserve natural resources, stop degradation, and promote sustainable development for the benefit of the environment and the people who live there, environmental protection is the practice of safeguarding the environment through laws and practices. Environmental awareness and enforcement are more important and essential than ever in the modern day. The environmental issue persists despite the Ethiopian Constitution's environmental protection clauses and other legal safeguards. The primary cause of the ongoing environmental issue is the absence of an adequate system for resource management, which is exacerbated by a lack of environmental consciousness and a lack of public and organizational participation.

NGOs' participation in environmental protection is an organized civil society reaction to places where the state has either not reached or has not sufficiently addressed the issue. This study looks at how NGOs contribute to environmental protection, with a particular emphasis on how they help with climate adaptation and mitigation.

Emdeber Catholic secretariat (EMCS) spearheaded myriad campaigns centered on eco-preservation in Cheha Woreda, situated in Ethiopia's Gurage Zone. This manuscript explores tactics utilized by non-governmental bodies, notably EMCS, to shelter the natural world and cultivate sustainable habits within the area. Through rigorous scrutiny of accessible written works and empirical investigation, the dissertation aims to gauge the success of EMCS ventures and the consequences of grassroots ecological endeavors.

The conclusions drawn from this exploration underscored the importance of non-state actors like EMCS in raising environmental awareness and promoting behavioral changes within rural communities. Short-term initiatives focused on reforestation and education alongside longer-term efforts centered on alternative livelihoods and stewardship of local resources. However, periodic evaluation of initiatives and participation of diverse stakeholders remained crucial to the durability and scalability of such community-driven sustainable development drive.

Table of Contents

WOLKITE UNIVERSITY	i
ADVISOR APPROVAL SHEET	ii
EXAMINER APPROVAL SHEET	iii
DECLARATION	iv
ACKNOWLEDGMENTS	v
LIST OF TABLES	4
Table 1: Degree of Concern for Environmental Problems	4
Table 2: ENGO's and Gaps in Fighting Climate Change	4
Table 3: Responsibilities of NGOs and Their Supplementary Characteristics	4
Table 4: Climate Change Adaptation Approaches.....	4
Table 5: Suitable Climate Change Adaptation Approaches	4
CHAPTER ONE: 1 INTRODUCTION	6
1.1 Background of the study	6
1.2 Statement of the Problem	7
1.3 Objectives	9
1.3.1 General Objective.....	9
1.3.2 Specific Objectives.....	9
1.4 Research questions	9
□ What environmental protection initiatives are carried out in Ethiopia by NGOs that were chosen?	9
□ How do Ethiopian environmental protection actors exploit their synergies?	9
□ Which approach to environmental protection yields the best results?	9
□ What are the main obstacles that the chosen NGOs face when carrying out their environmental protection missions in GZCW?.....	9
1.5 Significance of the Study.....	9
1.6 Scope of the Study.....	10
1.8 Organization of the study	11
CHAPTER TWO: LITERATURE REVIEW.....	12
Introduction	12
2. Review of Theoretical and Empirical Literatures	12

2.1 Review of Theoretical Literature	12
2.2 Contextual Framework of Environment	12
2.3 Definitions of Key Terms	14
2.4 Human, Nature and Environment	15
2.5 Environmental Problems	16
2.6 Population Growth & Challenges to Land Use.....	19
2.7. Pollution.....	20
2.8 Climate Change	21
2.9 Climate Change in Context.....	24
2.10 Methods and Approaches of Climate Change Adaptation & Mitigation	26
2.11 Actors in Environmental Protection	29
2.13 Review of Empirical Literature.....	34
CHAPTER THREE	36
3.1 Research Methodology	36
3.2 Research Approach and Design.....	36
3.3 Types and Sources of Data	36
3.4. Sampling and Sample Size Determination	36
3.5 Research Methods and Instruments of Data Collection	36
3.6 Methods of Data Analysis and Interpretation.....	37
3.7 Description of the Study Area.....	38
CHAPTER FOUR	39
4. Data Analysis and Interpretation.....	39
4.1 Introduction	39
4.2 Environmental Protection, Climate Change and NGOs	39
Fig.1 Environmental Protection, Climate Change and NGOs	39
4.3 Government's Environment Policy Framework and Approach in View of EMCS.....	41
4.4. NGOs and Environmental Issues	44
4.5 NGO's Existence to Fill the Gap Observed in Fighting Climate Change by Government. 46	
4.6. NGOs, Government, and Environment Protection	47
4.7. Climate Change Adaptation Approaches	48
4.7.1. Approaches Used by EMCS (Emdeber Catholic Secretariat).....	48
4.8. Suitable Climate Change Adaptation Approaches to Ethiopia in the Context of EMCs	49
4.9. The Necessity of NGOs in Environmental Protection	51

5.1 Conclusion	54
5.2. Recommendations	54
.....	63

LIST OF TABLES

Table 1: Degree of Concern for Environmental Problems

Table 2: ENGO's and Gaps in Fighting Climate Change

Table 3: Responsibilities of NGOs and Their Supplementary Characteristics

Table 4: Climate Change Adaptation Approaches

Table 5: Suitable Climate Change Adaptation Approaches

List of Figures

Figure 1: Environmental Protection, Climate Change and NGOs

Figure 1: Policy Framework of Deforestation/EMCs

Figure 2: Policy Framework of Pollution and Climate Change

CHAPTER ONE: 1 INTRODUCTION

1.1 Background of the study

The environment has different meanings in different disciplines. It was divided into two types; natural environment and built-up environment (Pankratz, 1996). The environment where we live in is severely affected by the act of living and non-living things, which demands a strong commitment in environment protection.

The protection of environment is a pressing issue. Every person, organizations and institutions have an obligation and duty to protect it. Environmental protection is the study, protection and conservation as well as the control and utilization of land, water, air, biodiversity and other similar environmental resources, which affect the life, and development of both human and nonhuman beings on earth (Boyce, 2013). Today, the stipulation of environmental awareness and enforcement of legal as well as moral forces into building environmental ethics is more demanding and urgent than ever before. environmental protection is a practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment and humans (Pankratz, 1996).Environmental protection are policies and procedures aimed at conserving the natural resources, preserving the current state of natural environment and, where possible, reversing its degradation (Pittock, 2009).

NGO is any non-profit, voluntary citizens' group, which was organized on a local, national or international level. Task-oriented and driven by people with a common interest, NGOs perform a variety of service and humanitarian functions, bring citizen concerns to Governments, advocate and monitor policies and encourage political participation through provision of information. Some are organized around specific issues, such as human rights, environment or health. They provide analysis and expertise, serve as early warning mechanisms and help monitor and implement international agreements. Their relationship with offices and agencies of the United Nations system differs depending on their goals, their venue and the mandate of a particular institution (Aubrey et al, 1998).NGO is an umbrella term which encompasses a broad array of organizations, varying enormously according to their purpose, philosophy, sectorial expertise and scope of activities. In the development field, NGOs range from large international organizations and charities (mostly based in developed countries) to small community based self-help groups in developing countries (Nelson & Wright, 1995).

Environmental protection is a pressing concern globally, with consequences ranging from loss of biodiversity to adverse impacts on human health and well-being. In Ethiopia, a country known for its diverse ecosystems and rich natural resources, environmental protection is of paramount importance

for sustainable development. The Gurage Zone, situated in the Central Ethiopia (CE) of Ethiopia, encompasses regions facing various environmental challenges, among which the Cheha Woreda stands out. The Cheha Woreda, characterized by its predominantly agrarian landscape, faces environmental threats such as deforestation, soil erosion, water pollution, and loss of biodiversity. These issues stem from a combination of factors including population growth, unsustainable agricultural practices, and limited access to resources and infrastructure. Addressing these challenges requires concerted efforts from various stakeholders, including governmental agencies, non-governmental organizations (NGOs), and community-based organizations (CBOs).

Ethiopia has recognized the importance of environmental conservation and has implemented national policies and strategies to address environmental challenges. The country has ratified international agreements such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD), underscoring its commitment to global environmental stewardship. Additionally, Ethiopia has developed its own national strategies, including the Climate Resilient Green Economy (CRGE) strategy, to promote sustainable development while mitigating environmental degradation. Non-governmental organizations (NGOs) play a crucial role in complementing government efforts and implementing grassroots initiatives for environmental protection. One such NGO operating in the Cheha Woreda is the Emdeber Catholic Secretariat (EMCS). EMCS, affiliated with the Catholic Church, has been actively involved in community development projects, including those focused on environmental protection and natural resource management.

Understanding the specific role of EMCS in addressing environmental challenges within the Cheha Woreda is essential for evaluating the effectiveness of local interventions and identifying opportunities for improvement. This study aims to investigate the contributions of EMCS to environmental protection in the Cheha Woreda, examining its activities, strategies, and impacts on conservation efforts. This study aims to evaluate the role of specific NGOs in environmental protection and to analyze the obstacles and opportunities they face in achieving their objectives related to environmental preservation.

1.2 Statement of the Problem

Ethiopia has established and implemented various legal, policy, and institutional frameworks addressing environmental issues, including water, forests, climate change, and biodiversity. The Constitution of the Federal Democratic Republic of Ethiopia outlines fundamental principles and guidelines for environmental protection and management.

The Ethiopian government has made efforts to address the consequences of environmental challenges. It has adopted a water and sanitation strategy involving diverse stakeholders, including the private sector. Recognizing the critical state of Ethiopia's biodiversity and forests, the government has intensified efforts to increase forest coverage and conserve biodiversity through the implementation of specific policies and strategies.

Emdeber Catholic Secretariat (EMCS) have developed a comprehensive strategy for building climate resilience and fostering a green economy. This strategy includes the Environmental Policy for Adaptation and Climate Change (EPACC), which establishes foundational frameworks at the local level to support climate resilience and identifies opportunities for integrating climate change into development strategies. These measures are reinforced by actions at federal, regional, and local levels. To capitalize on low-carbon technologies and promote a sustainable green economy, initiatives such as Nationally Appropriate Mitigation Actions (NAMAs) have been introduced.

Additionally, Ethiopia has designed the National Adaptation Program me of Action (NAPA) to identify priority climate change adaptation needs. The government has also identified technological requirements for mitigation, enhanced public awareness of climate change, and undertaken capacity-building projects under climate change initiatives. Internationally, Ethiopia has actively participated in addressing anthropogenic climate change, including producing national communications for the UNFCCC.

Despite these efforts, significant challenges remain. Weak regulatory systems for resource management, insufficient public and organizational awareness of pressing environmental issues, and limited participation in environmental protection efforts are key barriers Ethiopia continues to face. Environmental resources, which are critical to Ethiopia's economy, have suffered from stagnation and variability in GDP growth due to policy failures, recurrent droughts, civil conflict, natural resource degradation, and inadequate infrastructure. The overuse of renewable natural resources has led to a significant decline in productivity. Soil erosion, for example, has resulted in a substantial annual loss of land and livestock production.

Urban areas also face severe environmental and health challenges. Insufficient and poor-quality housing, inadequate sanitation services, a lack of sewerage infrastructure, and random defecation in urban spaces pose significant health and environmental threats. Furthermore, Ethiopia's natural and cultural heritage is under increasing pressure from neglect, decay, removal, destruction, and less visible factors such as shifting socio-cultural values, foreign influences, and imported technologies.

While progress has been made in climate change mitigation and adaptation, climate change remains a growing challenge to the nation's economic development policies and practices. Limited

information dissemination, research, policy advocacy, capacity building, and awareness-raising, combined with weak mitigation and adaptation measures have hindered the sustainable use of Ethiopia's resources to achieve long-term development goals.

Government institutions dedicated to environmental management and conservation face challenges that often exceed their capacities. This creates an opportunity for NGOs to fill critical gaps. Various NGOs are actively engaged in supporting the government's environmental efforts.

This paper examines the role of NGOs in addressing these gaps. It explores their contributions to policy formulation, evaluation, and implementation, as well as the extent to which their efforts have complemented government initiatives. For this purpose, One NGOs have been selected as representatives of key stakeholders in this domain. These organizations are actively involved in supporting the government through their contributions to environmental management and conservation under the framework.

1.3 Objectives

1.3.1 General Objective

-  The general objective of the study is to assess the role of (EMCS), in environmental protection in Cheha Woreda, Gurage Zone.

1.3.2 Specific Objectives

- Examine the actions taken by the chosen NGOs to protect the environment in Ethiopia
- Examine how actors use synergies to protect the environment in Ethiopia
- Assess the efficacy of environmental protection techniques based on outcomes
- Determine the main obstacles faced by the chosen environmental NGOs in carrying out their environmental protection efforts in Ethiopia.

1.4 Research questions

- What environmental protection initiatives are carried out in Ethiopia by NGOs that were chosen?
- How do Ethiopian environmental protection actors exploit their synergies?
- Which approach to environmental protection yields the best results?
- What are the main obstacles that the chosen NGOs face when carrying out their environmental protection missions in GZCW?

1.5 Significance of the Study

Understanding the role of EMCS in environmental protection in Cheha Woreda is crucial for informing future interventions and policies aimed at addressing environmental challenges in rural

Ethiopia. By evaluating the effectiveness of EMCS's initiatives, this study seeks to identify best practices and lessons learned that can be replicated or scaled up by other NGOs and governmental agencies working in similar contexts. Additionally, the findings of this study can contribute to the broader discourse on community-based environmental management and the role of NGOs in sustainable development.

1.6 Scope of the Study

The scope of this study was focused on evaluating the role of Emdeber Catholic Secretariat (EMCS) in environmental protection initiatives within Cheha Woreda, located in the Gurage Zone of Ethiopia. Specifically, the study will assess the nature and effectiveness of EMCS's interventions in addressing key environmental challenges such as deforestation, soil erosion, water pollution, and biodiversity loss in the region. The geographical scope of the study is limited to Cheha Woreda, Gurage Zone, ensuring a detailed analysis of EMCS's activities within this specific area. The study will examine the environmental projects undertaken by EMCS, including their objectives, implementation strategies, and outcomes.

Furthermore, the study will investigate the level of community engagement facilitated by EMCS in environmental conservation efforts within Cheha Woreda. This includes assessing the extent of community participation in decision-making processes, project implementation, and sustainability initiatives. Challenges and constraints faced by EMCS in executing environmental protection projects in Cheha Woreda will also be explored. This encompasses factors such as institutional capacity, funding limitations, logistical challenges, and community dynamics.

Lastly, the study will identify opportunities for enhancing the effectiveness and sustainability of EMCS's environmental initiatives in Cheha Woreda. This involves exploring strategies for collaboration, capacity building, and stakeholder engagement to maximize the impact of EMCS's interventions.

1.7 Limitations of the Study

The study was confined to Cheha Woreda in the Gurage Zone, limiting the generalizability of findings to other regions. Limited access to comprehensive data on EMCS's interventions and their impact on environmental indicators may restrict the depth of analysis. Time and financial constraints may hinder extensive fieldwork, interviews, or surveys, affecting the study's comprehensiveness. Despite efforts to maintain objectivity, the study may be influenced by researcher bias or subjectivity in data interpretation. Local politics, power dynamics, and cultural factors may influence community

input and cooperation, potentially impacting data reliability. EMCS's policies or limitations on data sharing may restrict access to crucial information for the study. Acknowledging these limitations is essential for ensuring the study's integrity and providing context for the interpretation of findings.

1.8 Organization of the study

The study on the role of Emdeber Catholic Secretariat (Emcs) in environmental protection has organized into sections including Introduction, Literature Review, Methodology, Results, Discussion, Conclusion, and References. Each section will serve to elucidate the background, context, methodology, findings, and implications of EMCS's involvement in environmental conservation efforts in the Cheha Woreda of Gurage Zone.

CHAPTER TWO: LITERATURE REVIEW

Introduction

2. Review of Theoretical and Empirical Literatures

2.1 Review of Theoretical Literature

This chapter deals with the review of literatures concerning environment and environment protection. Concept of environment, environmental problems and actors involved in environmental protection are discussed in detail referring to several literatures. Reviews of literatures concerning the nature of environmental problems and internationally owned negotiations and agreements over the problem of climate change are also discussed. In view of this, various discussions culled from a number of sources are under review here.

2.2 Contextual Framework of Environment

An ecosystem is a community of living (biotic) organisms (plants, animals and microbes) in conjunction with the nonliving components (a biotic) of their environment (air, water and mineral soil), interacting as a system. Ecosystems are a biological community and its physical environment, and come in various sizes from limited spaces to the entire planet. Ecosystems are dynamic with networks of interactions among organisms, between organisms and their environment. They are linked together through nutrient cycle and energy flow. Ecosystems are controlled both by external factors (climate, the parent material which forms the soil and topography, and internal factors (decomposition, root competition or shading, disturbance, succession and types of species.) (Pankratz, 1996).

Today, with modern technology, humans can live in places where it was impossible before. This is achieved by the provision of buildings and complex infrastructure tuned to the existing climate, such as urban and rural water supplies, drainage, bridges, roads and other communications. These involve huge investments of time and money. Trade, particularly of food and fiber for manufactured goods, has also been strongly influenced by climate. Roads, buildings and towns are designed taking local climate into consideration.

Design rules, both formal and informal, zoning and safety standards are developed to cope not just with average climate but also with climatic extremes such as floods and droughts. If the climate changes, human society must adapt by changing its designs, rules and infrastructure; often at great expense, especially for retrofitting existing infrastructure (Pittock, 2009).

Report of National Statistics Abstract (2010), precisely explained the flexibility and interdependence of environment with other social as well as economical and demographical trends. The environment is variable, complex, and difficult to predict. That difficulty is in part due to imperfect scientific

knowledge about environmental processes, but it is also a consequence of imperfect knowledge about economic, demographic, and social processes that drive environmental change and the feedback effects of environmental change on economic, demographic, and social processes. Sustainable pathways to address environmental and human health challenges will only emerge if societies choose to pursue sustainable solutions and devote resources to successfully designing sustainable policies.

The environment operated in a state of dynamic equilibrium. Water evaporates from the surface of the earth and the oceans, leaving behind salts and silt. Precipitation renews the fresh water reservoirs. As far back as the 1940s, energy conservation, water conservation, water reuse, material substitution, and reclamation and recycling were practiced, mainly for economic reasons. The motivation to implement these ideas has increased as environmental regulations become stricter and the cost of water, fuel and electricity increase (Cheremisinoff, 2002). Legislation that was introduced often ignored the technical aspects of the problem, and hence was unenforceable (Schnelle, Brown et al, 2002).

The essential compounds of life contain carbon, nitrogen, hydrogen and oxygen that cycle between organic and inorganic forms. Some of these compounds are water-soluble and travel with streams or groundwater; some are volatile and move into the atmosphere to be returned to earth by precipitation, photosynthesis, or nitrogen fixation. When these pathways and cycles are disturbed, life patterns are interrupted (Ibid, 2002).

The challenge is that toxic pollutants come in many forms and cause diverse harmful effects. Some accumulate in the flesh and organs of animals, some breakdown the environment, some are mobile while others are not, some cause cancer or birth defects after long exposure, some kill quickly at sufficiently high doses, and some upset normal body functions in suitable ways that we may overlook until the cumulative effect is serious disease (Cheremisinoff, 2002).

Investment in water supply and sanitation usually yield economic benefits. The reductions in adverse health effects and health care costs outweigh the cost of intervention. Nevertheless, environmental protection often comes after the development of schools, hospitals, telecommunications, transportation and other national needs. And it usually comes under pressure from a collection of laws that protect environmental quality and public health (Ibid, 2002).

Environmental issues have emerged as one of the most severe challenges humankind has to cope with carefully in contemporary and future world. The principal danger of environmental problems lies in that, they present risks within the state where it originates, to that state's neighbors and, possibly, the global commons (Ross, 1998).

A clean environment is a goal to which we all strive. However, we have been the victims' of severe environmental damages as a result of industrial growth and defense-related activities. The damage to our environment is substantially affecting our overall health and welfare. It is a credit to our human spirit that we remain optimistic and share an enthusiasm about environmental issues (Clarke, 2000).

What does it mean to say that the environment is our 'common heritage'? On one level this is a simple statement of fact: when we are born, we come into a world that is not of our own making.

The air we breathe, the water we drink, the natural resources on which our livelihoods depend, and the accumulated knowledge and information that underpin our ability to use these resources wisely; all these come to us as gifts of creation that have been passed on to us by preceding generations and enriched by their innovation and creativity (Boyce, 2013).

To say that the environment belongs in common and equal measure to us all does not mean that we have inherited a free gift with no strings attached. For our common heritage carries with it a common responsibility: the responsibility to share the environment fairly among all which are alive today, and the responsibility to care for it wisely to ensure that our children, our grandchildren and the generations who follow will share fairly in our common heritage too (Ibid, 2013).

2.3 Definitions of Key Terms

Environment

- "Environment" generally refers to a natural-resource base that provides sources (material, energy, and so forth) and performs "sink" functions (such as absorbing pollution). The term can include resources that people relied on in the past but no longer rely on (either because they are depleted or because they have been substituted by some other resource or technology). Similarly, it can include resources that people do not yet use, but could use with a change in knowledge or technology (Leach & Mearns, 1991).
- The environment includes the surroundings, conditions or influences that affect an organism (Denton, 2010). Along these lines, Lewis (2001) defined the environment as; all that which is external to the human host. Can be divided into physical, biological, social, cultural, etc., any or all of which can influence health status of populations. According to this definition, the environment would include anything that is not genetic, although it could be argued that even genes are influenced by the environment in the short or long-term.

Environmental Protection

- Environmental protection is a practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment and humans (Pankratz, 1996).

- Environmental protection are policies and procedures aimed at conserving the natural resources, preserving the current state of natural environment and, where possible, reversing its degradation (Pittock, 2009).

NGOs

- NGO is any non-profit, voluntary citizens' group which is organized on a local, national or international level. Task-oriented and driven by people with a common interest, NGOs perform a variety of service and humanitarian functions, bring citizen concerns to Governments, advocate and monitor policies and encourage political participation through provision of information. Some are organized around specific issues, such as human rights, environment or health. They provide analysis and expertise, serve as early warning mechanisms and help monitor and implement international agreements. Their relationship with offices and agencies of the United Nations system differs depending on their goals, their venue and the mandate of a particular institution (Aubrey et al, 1998).
- NGO is an umbrella term which encompasses a broad array of organizations, varying enormously according to their purpose, philosophy, sectoral expertise and scope of activities. In the development field, NGOs range from large international organizations and charities (mostly based in developed countries) to small community based self-help groups in developing countries (Nelson & Wright, 1995).

2.4 Human, Nature and Environment

Human activities are responsible for a major decline of the world's biological diversity, and the problem is so critical that combined human impacts could have accelerated present extinction rates to 1000–10,000 times the natural rates (Wilson & Peter, 1988).

Human society and the environment interact with each other. Human impacts (i.e., anthropogenic impacts) on the environment refer to the impacts of human activities on biophysical environments, biodiversity and other resources. Those activities include agricultural practices (deforestation, genetically modified food, agricultural chemicals, soil degradation, agricultural plastics), fishing (overfishing, ecological disruption, by-catch), irrigation (soil Stalinization, reduced river discharge, evaporation, withdraw of groundwater drainage), livestock production (pollution, fossil fuels, water and land consumption), energy industry (climate change, biofuel use, fossil fuel, electricity generation, renewable energy, manufacturing (cleaning agents, nanotechnology, paint, pesticides, pharmaceuticals and personal care products), mining (erosion, sinkholes, loss of biodiversity, contamination of soil, contamination of ground water and surface water), transport (use of fossil

fuels, air pollution, emission of carbon dioxide, traffic congestion, invasion of natural habitat and agricultural lands) (Pankratz, 1996).

When farmers grow and harvest crops, they remove some of nutrients from the soil. Without replenishment, land suffers from nutrient depletion and becomes either unusable or suffers from reduced yields. In practice, farmers tend to over-apply synthetic fertilizers or animal manures, which can improve productivity but can pollute nearby rivers and coastal waters.

Many farming practices can cause long-term damage to soil including excessive tillage (leading to erosion). Soil erosion is fast becoming one of the world's greatest problems.

The phenomenon is fast becoming one of the world's greatest factory farming techniques being called peak soil as present large scale factory farming techniques are jeopardizing humanity's ability to grow food in the present and in the future. Without efforts to improve soil management practices, the availability of arable soil will become increasingly problematic. Availability of water is crucial for sustainable agriculture. In some areas, sufficient rainfall is available for crop growth, but many other areas require irrigation. However, improper irrigation without adequate drainage can lead to Stalinization (Pankratz, 1996).

The natural environment and built environment can also affect human health. The World Health Organization defines environmental health as those aspects of the human health and disease that are determined by factors in the environment. The impacts of environment on human health include both the direct pathological effects of chemicals, radiation and biological agents, and the indirect effects on health and wellbeing of the broad physical, psychological, social and cultural environment (e.g., housing, urban development, land use and transport) (Ibid, 1996).

2.5 Environmental Problems

We must disturb the environment as we draw from it food, water, shelter, clothing, energy, and all of our material needs, and as we dispose in to it our wastes (Cheremisinoff, 2002). What does it mean to say something is 'bad for the environment' or 'good for the environment'? These value judgments rest, implicitly or explicitly, on ethical criteria by which we distinguish better from worse. A criterion that has gained many adherents in the past two decades is 'sustainable development.' The World Commission on Environment and Development defined this in its 1987 manifesto, Our Common Future (known as the Brundtland Report, after Commission Chair GroBrundtland), as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs.'

By this criterion, 'environmental harm' means actions that compromise the ability of future generations to meet their needs. Conversely, 'environmental improvements' would refer to actions that enhance the ability of future generations to meet their needs (Boyce, 2013).

National Statistics Abstract report (2010) summarized the challenges associated with environment. The challenges associated with environmental protection today are multifaceted and affected by many interacting factors. The challenges operate on various, often large, spatial scales, unfold on long temporal scales, and usually have global implications (for example, carbon dynamics, nutrient cycles, and ocean acidification).

Environmental harm is not randomly distributed across the population, but instead reflects the distribution of wealth and power. The relatively wealthy and powerful tend to benefit disproportionately from the economic activities that generate environmental harm. The relatively poor and powerless tend to bear a disproportionate share of the environmental costs (Ibid, 2013). In practice, many environmental costs are localized, rather than being uniformly distributed across space. This makes it possible for those who are relatively wealthy and powerful to distance themselves from environmental harm caused by economic activities (Princen, 1997).

A number of studies have found that race and ethnicity matter, even when controlling for income: communities with higher percentages of African- Americans, Latinos, Asian- Americans and Native Americans tend to face greater environmental hazards. This finding suggests that political power has an impact on exposure to environmental harm, above and beyond whatever can be explained simply by differences in purchasing power (Ibid, 2013).

The total magnitude of environmental harm depends on the extent of inequality. Societies with wider inequalities of wealth and power will tend to have more environmental harm. Conversely, societies with relatively modest degrees of economic and political disparities will tend to have less environmental harm.

When the beneficiaries from environmentally harmful activities are more powerful than those who bear their costs, greater inequality can be expected to result in more environmental harm. On the other hand, when those who bear the costs are more powerful than the beneficiaries, we might expect the opposite: greater inequality yields less environmental harm (Boyce, 2013). Political influences also play a role, prompting action in some cases and inaction in others. Consider the contrast in the international responses to ozone- layer depletion and global warming.

The 1987 Montreal Protocol on ozone- depleting substances successfully instituted a worldwide phase-out of the use of CFCs. Although the benefits of CFC use in; refrigeration, air conditioning, fire extinguishers, solvents, foams and aerosols; were concentrated in the industrialized countries, so

were the environmental costs. Ozone-layer thinning is most pronounced at the higher latitudes, and light-skinned people are most susceptible to skin cancers and melanomas caused by increased ultraviolet radiation (Ibid, 2013).

Major socioeconomic factors are directly and indirectly driving environmental changes. Those socioeconomic factors are often reflected in population growth and migration, demographic shifts, land-use change and habitat loss, increasing energy demand and shifting energy supplies, new consumer technologies and consumption patterns, increasing emissions of greenhouse gases, and movement of organisms beyond their traditional ranges. These were the major and worldwide environmental challenges of the present time mentioned in the report of National Statistics Abstract of 2010.

Burning coal and oil overloads the carbon dioxide reservoir in the atmosphere. The heavy use of phosphate and animal wastes as fertilizer overloads the phosphorus balance in lakes, reservoirs, and rivers and causes excessive growth of algae and aquatic plants. The instability can be magnified because the cycles are linked. The carbon, oxygen, nitrogen, phosphorous, and sulfur cycles are linked to the oxygen cycle (Cheremisinoff, 2002).

Wastes from processing plants pose the most difficult disposal and environmental problems in view of the physical and chemical properties of the wastes as well as the enormous volumes involved, and consequently a large expanse of land must be used for the disposal (Wendt, 1999).

There is little doubt that environmental factors are major components of the burden of disease in developing countries. One study estimates that 20 percent of the total burden of ill- health in one state in India is due to environmental factors. In this case environment is considered as including household water supply, toilets, wastewater collection and treatment, indoor air pollution, agrochemical pollution, and urban air pollution (Hogue, 2009).

Furthermore, diseases related to environmental factors affect the (income) poor disproportionately. Respiratory infections and diarrheal diseases are the two biggest causes of death among the poorest 20 percent of the world's population as ranked by national gross domestic product per capita. These diseases are responsible for 13 percent and 11 percent, respectively, of deaths of the poor. Malaria is the tenth biggest killer of the world's poor, responsible for 4 percent of deaths. In contrast, respiratory infections are responsible for only 5 percent of the deaths of the richest 20 percent of the world's population; the contribution of diarrheal diseases and malaria is negligible. Respiratory infections and diarrheal diseases together are responsible for 33 percent of the total poor-rich mortality gap (Gwatkin & Guillot, 2000).

The following are major environmental issues that require urgent attention to make the ecology responsive.

2.6 Population Growth & Challenges to Land Use

The population growth is one of the grand challenges for sustainable development since an increasing population places additional strain on natural resources. Currently, most population growth occurs in the developing world and population is more or less stagnant in the industrialized world. The economic development is linked with the quality of life.

As the pattern of population shows, the rate of population growth could be stabilized by improving quality of life. However, improvement in quality of life and economic development has closely linked with enhanced consumption and associated depletion and environmental degradation (Pankratz, 1996).

Population growth and demographic transitions have increased the requirement of land area for residential, commercial, and transportation activities (Squires, 2002). With the dramatic increase in population, human activities have altered and will continue to alter an ever-increasing portion of Earth's surface (Wulder et al, 2012). Such activities have diminished natural ecosystems and the benefits that they provide, including water purification, flood control, climate moderation, and new crop plants.

CIA defined Ethiopia's population growth rate as "The average annual percent change in the population, resulting from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving a country. The rate is a factor in determining how great a burden would be imposed on a country by the changing needs of its people for infrastructure (e.g., schools, hospitals, housing, roads), resources (e.g., food, water, electricity), and jobs." Accordingly, Ethiopia's population growth rate in the year 2013 reached 2.9%; with this increasing rate, the growth and its counter effect on the environment is posing a negative string to the things surrounding it in particular and the society in general.

In its report National Statistics Abstract (2010) defined land use as, "Land use is a major factor driving environmental quality. Land use strongly influences water quality through runoff, water quantity through influence on the hydrologic cycle, air quality through emissions and deposition and carbon storage in terrestrial landscapes, and biologic diversity through habitat loss, disturbance, and resource availability."

Forests provide many ecosystem services. They support biodiversity, providing critical habitat for wildlife, remove carbon dioxide from the atmosphere, intercept precipitation, slow down surface runoff, and reduce soil erosion and flooding. These important ecosystem services will be reduced or

destroyed when forests are converted to agriculture or urban development. For example, deforestation, along with urban sprawl, agriculture, and other human activities, has substantially altered and fragmented the Earth's vegetative cover.

Such disturbance can change the global atmospheric concentration of carbon dioxide, the principal heat-trapping gas, as well as affect local, regional, and global climate by changing the energy balance on Earth's surface (Marland et al, 2003).

Majority of Ethiopia's total cultivated land depends on semi-commercial or subsistence farming systems. With a rapidly growing population, Ethiopia needs to increase food production in which 85-90 percent of the population lives on agriculture. However, population growth and agricultural production are not growing in par, due to land shortage, expansion to marginal lands and protected areas. In addition, the arable soils are amongst the oldest in Ethiopia and are highly degraded and eroded by a combination of water and wind erosion.

2.7. Pollution

Pollution is the introduction of contaminants into the natural environment with adverse changes (air pollution, water pollution, land pollution, etc.). Pollutants can be either foreign substances or naturally occurring contaminants (Pankratz, 1996).

- **Air Pollution**

To have an air pollution incident, there are three factors that must occur simultaneously. There must be sources, a means of transport, and receptors. Air pollution sources are relatively common knowledge. Their strength, type, and location are important factors.

By transport, reference is made to the meteorological conditions, and the topography and climatology of a region, which are the important factors in dispersion; that is, in getting the material from the sources to the receptors. The receptors include human beings, other animals, materials, and plants (Schnelle, Brown et al, 2002).

Air pollutants can travel around the globe and do damage on a global scale. One example is the damage to the ozone layer; another is greenhouse gases and climate change (Cheremisinoff, 2002). Waste treatment itself produces emissions. Burning an unwanted by-product to produce energy creates exhaust gas that contains air pollutants. Capturing dust from the exhaust gas will produce a solid waste; absorbing gaseous pollutants into a liquid creates a new stream of waste water.

Achieving zero discharge of water-burn pollutants will leave some pollutants to be discharged as a gas, sludge, or solid (Ibid, 2002). Short- term exposure to ozone can cause shortness of breath; long-term exposure can cause permanent damage to the lungs (Ford, 1995).

We also know that air pollution can affect visibility and can endanger our lives simply by making it difficult to travel on the highways and difficult for planes to land. The dollar cost of air pollution is

the subject of much debate. However, it must be an astronomical figure especially when you add such things as the extra dry cleaning and washing, houses that need more paintings than they should, etc. The dollars lost to poor crops is a costly item in our economy, notwithstanding the impairment to shrubs, flowers, and trees (Schnelle, Brown et al, 2002).

- **Water Pollution**

Water quality is of key importance to man and nature (Geiger, 1965). Freshwater is essential for food supplies, sanitation and human health. It is also critical for natural ecosystems and for many industrial processes, including many existing water-cooled power stations (Pittock, 2009).

Since 1970, although understanding of hydrologic systems has advanced, water problems have been overshadowed by the challenges and rapid changes in land use and economic systems (Leach & Mearns, 1991).

The water cycle, driven by the sun's energy, provides continual regeneration of fresh water by evaporation from land and sea. Snow and rain condense from this evaporated water. Preserving the integrity of this hydrologic cycle is a central problem in environmental protection (Cheremisinoff, 2002).

Flooding tends to reduce water quality by introducing large amounts of eroded materials. By transforming low lying areas to farm lands, man has removed much of the floodplain vegetation and wetland areas that act as natural stilling ponds, sediment intercepts, hydraulic sponges, and erosion protection. Compounding the problem, large quantities of chemicals are flushed into the surface water by overland flows. Chemical loading and poor water quality can have long and short-term consequences. Point sources for chemical introductions include inundated municipal and industrial sites, including wastewater treatment plants, chemical processing and manufacturing centers, and disposal or holding areas (Geiger, 1965).

Dealing with polluted water may create gaseous emissions or solid residues that are part of the same problem. Contaminated groundwater can be pumped and cleaned of a solvent without making it safe for discharge to a stream, and the solvent will still exist in some form, perhaps as a gas or adsorbed onto a solid. A solid waste disposal problem refuse into a sanitary landfill, will produce a strong leachate and gas, both of which need to be collected and subjected to further management (Ibid, 2002).

2.8 Climate Change

In broad terms, 'climate' is the typical range of weather, including its variability, experienced at a particular place. It is often expressed statistically, in terms of averages over a season or number of years, of temperature or rainfall and sometimes in terms of other variables such as wind, humidity,

and so on. Variability is an important factor. 'Climate variability' is variability in the average weather behavior at a particular location from one year to another, or one decade to another. Changes in the behavior of the weather over longer time scales, such as one century to another, are usually referred to as 'climate change' (Pittock, 2009).

Climate is critical to the world as we know it. The landscape, and the plants and animals in it, are all determined to a large extent by climate acting over long intervals of time. Over geological time, climate has helped to shape mountains, build up the soil, determine the nature of the rivers, and build floodplains and deltas. At least until the advent of irrigation and industrialization, climate determined food supplies and where human beings could live (Ibid, 2009).

Pittock (2009), mentioned the fact that, climate has changed greatly over geological timescales. But what is of immediate concern is that climate has shown an almost unprecedented rapid global warming trending the last few decades. Climate change impacts are complex in that they can be both direct and indirect. For example, more rain may lead directly to either greater or smaller crop yields, depending on factors such as the type of crop, the soil and the present climate. Indirect effects could include changes in supply and demand as a result of these larger or smaller yields, both regionally and globally, and the resulting changes in commodity prices, the profitability of farming, and the affordability of food and effects on human health.

Impacts of climate change will not be distributed equally over the globe. Adverse impacts are likely to be greater and to occur earlier in low-latitude developing countries than in mid- and high-latitude developed countries. This is mainly because low-latitude countries are near or above optimum temperatures for many crops and activities already.

Such countries are also less able to adapt both because more heat-tolerant species and cultivars are less available and these countries tend to have less adaptive capacity.

As warming increases with time even the more developed countries will experience adverse effects, but the poorer countries will remain more seriously affected. Thus inequality between countries will be made worse. Inequalities in impacts will also apply within countries between the poor and the rich, and between vulnerable and less vulnerable regions (Pittock, 2009).

In the last several decades, it has become clear that human activities have had substantial effects on global climate. The global temperature has increased by an average of 0.6°C since 1901 (IPCC, 2007).

Furthermore, there is strong scientific consensus that in coming decades climate change is likely to increase the frequency of heat waves, exacerbate problems with water supply and water quality, increase the severity of storms, and disrupt ecosystems, habitat, and food production (Ibid, 2007).

Disparate impacts arise not only from the greater vulnerability of poorer populations, but also, in some cases, from circumstantial factors. In the case of global warming, for example, the IPCC predicts that average surface temperatures on Earth will rise by 18–48°C in the present century. Even if adverse impacts were distributed equally across humankind, the poor would suffer most by virtue of the fact that they start from a lower economic base. In addition, climate scientists forecast that the hardest- hit places will include parts of Africa, where droughts are expected to worsen in frequency and intensity, and low-lying regions of tropical Asia that are prone to increased flooding and cyclones.

The effects of climate change, the IPCC (2001) concludes, are expected to be greatest in developing countries in terms of loss of life and relative effects on investment and the economy.’

It is often argued that as human societies become richer and more technologically advanced, they become less dependent on nature and more able to adapt to climatic change. Poorer societies are likely to be more adversely affected by climate change than richer ones, so the capacity of a society to adapt, it is said, will inevitably increase with economic development.

In terms of the number of deaths from weather and climatic disasters, such as storms, floods and droughts, this appears to be borne out by common observations and statistics. However, the same statistics show that monetary damages from such disasters are greater in many richer developed countries, and that, irrespective of climate change, there is a rising trend in such damages (Pittock, 2009).

Even in rich countries, there are trends towards greater exposure to weather and climatic hazards, such as flooding by rivers and along low-lying coasts, drought, hail and windstorms. Examples include the increasing population and investments along the hurricane-prone Atlantic Coast of the United States, and the cyclone-prone coasts of northern Australia. These developments lead to greater potential economic losses. Reductions in loss of life are only achieved through large expenditures, for example on cyclone-proof buildings, early warning systems, evacuation, and rescue services (Ibid, 2009).

Biodiversity is the degree of variation of life forms at all levels of biological systems (i.e., molecular, organism, population, species and ecosystem) and is used to measure the health of ecosystems. However, most biologists agree that the period since human emergence is part of a new mass extinction, named the Holocene extinction event, caused primarily by the impact humans on the environment via the acronym HIPPO (Habitat destruction, Invasive species, pollution, human over population, and over-harvesting) (Pankratz, 1996).

2.9 Climate Change in Context

A common reaction to climatic change research by scientists in other disciplines, and by many decision-makers, is that there are other global change issues (such as land-use change, water supply or economic development) deserving of greater priority both for research funding and for policy concern and action. Climate change must be seen in the context of these other problems and stresses. The climate change issue should be put in context and given its due weight and not more (Pittock, 2009).

Pittock (2009) in his book *Climate Change; The Science, Impacts and Solutions*, explained the relationship of climate change with other environmental problems as follows:

- **Air Pollution and Climate Change**

There are a number of connections and feedbacks between surface air pollution and climate change. Near-surface ozone air pollution and the emissions that drive it are important contributors to global climate change. Pollutants such as nitrogen oxides, carbon monoxide and volatile organic compounds lead to ozone pollution in urban environments and to a global increase in ozone concentrations in the lower atmosphere. Ozone in the lower atmosphere is the third largest human induced contributor to global warming, after carbon dioxide and methane. Global warming tends to make urban air pollution and surface ozone concentrations worse (or at least different) by affecting the chemistry of the atmosphere, and changes in water vapor content and atmospheric circulation.

- **Land-use Change, Biodiversity, Agriculture, Forestry and Climate Change**

Changes in land-based and marine plant and animal systems occur for many reasons, including land-use change, pollution, and climate change and increasing atmospheric concentrations of carbon dioxide. In turn, changes in these biological systems affect climate by changing the exchange of greenhouse gases including carbon dioxide, methane and oxides of nitrogen between the land and ocean surfaces and the atmosphere.

Land surface cover by vegetation also has an important effect on the reflection and absorption of sunlight at the Earth's surface, and thus on temperatures and evaporation. Massive land-clearing for agriculture or biomass production (for example from palm oil or other oilseed crops) can lead to a number of problems, notably loss of stored biomass in existing forests and soils, changes in albedo or reflectivity of the surface, and the introduction of invasive species. Competition for land between agricultural production for food and for biomass energy is also a major consideration in relation to food shortages and prices, other factors such as increasing oil prices, population demand and market speculation may have played a larger role in recent food price escalation.

Natural climate variability, from year to year and decade to decade, demonstrates that the biosphere is sensitive to climate and thus to climate change. But the effects of other stresses such as erosion, fire, sea-level rise, and Stalination and air pollution are also evident.

These can amplify the effects of climate change, or at least add to stresses on humans reliant on the biosphere for food, fiber and shelter. Other stresses on the biosphere, many driven by the rapid growth in human population and consumption of resources, such as land-clearing, air and water pollution and over-exploitation also increase the vulnerability of the biosphere to climate change and sea-level rise.

- **Fresh Water and Climate Change**

Strains on urban water systems are likely to increase due to global climate change. Typical strains are likely to include:

- increased water demand in hotter, drier seasons when water supply is at a minimum;
- floods exceeding the design capacity of protection works;
- more extreme rainfall events exceeding sewage design capacities, leading to overflows;
- less dilution of wastewater discharge into rivers with less dry-season flow;
- increased eutrophication and reduced water quality due to high nutrient loadings, low water flows and high temperatures;
- Conflicts in the management of dams to simultaneously protect against greater floods, limit eutrophication, generate electricity and store water for dry seasons.

- **Population Growth and Climate Change**

Ever since Thomas Malthus' Essay on the Principle of Population in 1798, global population growth has loomed as a major environmental issue. The Malthusian argument is that population growth would outstrip the capacity of the Earth to support the population. Applied to the greenhouse effect, this relates to the Earth's capacity to accept additional greenhouse gas emissions without harm. In 1965, E Boserup offered the contrasting view that high population densities favor technological innovation that enables the environment to support more people.

Applied to the greenhouse effect this suggests that technological innovation may avoid harm by either increasing our capacity to adapt, or by providing less carbon-intensive means of supplying energy services.

Greenhouse gas emissions are a product of population, energy use per person, and carbon intensity of energy production. Population is thus a driver of greenhouse gas emissions, but it is usually downplayed relative to economic growth and a failure to decrease energy intensity since 2000. Empirical evidence from data from 1975 to 1996, analyzed by Anqing Shi of the World Bank,

indicates that greenhouse gas emissions increased more rapidly than population in developing countries, but less rapidly than population in developed countries.

2.10 Methods and Approaches of Climate Change Adaptation & Mitigation

Adaptation is an automatic or planned response to change that minimizes the adverse effects and maximizes any benefits. It is one of the two possible means of coping with human-induced climate change and sea-level rise. The other option is to reduce the magnitude of human-induced climate change by reducing greenhouse gas emissions, this is called mitigation.

Adaptation is essential to cope with the climate change and sea-level rise that we cannot avoid now and in the near future, while mitigation would limit the extent of future climate change (Pittock, 2009).

Adaptation can be purely reactive, autonomous or automatic in response to some perceived change in the climate. In natural systems this is the only type of adaptation, although humans can intervene to facilitate adaptation, in which case the systems become managed. For example, as climate changes natural species will die out in areas that become unsuitable, and may spread to other areas that become suitable. This is often a slow process, taking decades for seed to spread, germinate and grow into mature plants. Where there are obstacles, such as unsuitable soils or developed land, spread maybe halted. Human intervention can facilitate and speed up such species migration by creating vegetation and wildlife corridors, planting seeds or seedlings in new areas, or by eliminating competition from other species (Ibid, 2009).

Rapid climatic change allows less time to adopt than slow change of the same eventual magnitude, and may incur larger costs in terms of investment in new farming practices, rezoning and new design standards for engineered structures such as buildings, bridges, drains, dams and levees. Moreover, natural ecosystems have not only limited absolute ranges of adaptability, but also limited rates of adaptation. And human beings will find it psychologically and politically easier to respond appropriately to climatic change if it is slow and well established statistically, than if it is rapid but less clearly a part of some long-term change (Ibid, 2009).

The projected climate changes in the twenty-first century are so large that, even at the low end of the range of possibilities, impacts will require costly adaptations, and in some cases our capacity to adapt will not be enough to avoid serious damage to individuals and society. It will therefore be necessary to reduce climate change by reducing net greenhouse gas emissions to the atmosphere. In the language used by the IPCC and the UNFCCC, this is called ‘mitigation’ (Ibid, 2009).

The percentage reduction needed in greenhouse gas emissions to avoid dangerous changes to the Earth’s climate is large but uncertain. Stabilizing the concentration of greenhouse gases in the

atmosphere requires total emissions per annum at some time in the future to be less than or equal to the total removal of greenhouse gases per annum from the combined atmosphere— shallow oceans— land/soil biota system. Removal can occur by natural processes or it can be artificially accelerated (Pittock, 2009).

Mitigation, or greenhouse gas emissions reductions, can be achieved in several general ways: through increased energy efficiency, fuel substitution, use of non-fossil-carbon fuels (including nuclear power and renewable), carbon sequestration (or removal from the climate system), and infrastructure and lifestyle changes (Ibid, 2009).

When water withdrawals are greater than about 20% of the total renewable resources, water supply is often a limiting factor in development, while withdrawals of over 40% mean serious water stress. In many arid regions this is being overcome by withdrawals from underground reservoirs, which were laid down over thousands of years (Ibid, 2009).

Other areas of concern include restoration of environmental flows to preserve riverine ecosystems and maintain freshwater fisheries, and the potential effects on runoff of reforestation (for various purposes, such as control of soil erosion and stabilization, and for carbon sequestration) (Ibid, 2009). Major technological fixes or adaptations being considered include water diversions between river systems. However, these are very costly and controversial, involving ecological problems and in some cases displacement of large numbers of people. Other costly solutions include desalinization plants, which need large energy supplies. Rationalizations that these can be supplied from renewable sources such as wind power miss the fact that in most situations such renewable energy installations are urgently needed to replace fossil fuel energy for other uses.

Alternative adaptations include demand management through water conservation and pricing and recycling of water. Reducing the extent and rapidity of climate change through mitigation actions appears necessary (Pittock, 2009).

Population is already declining in most developed countries. This is thought to be a result of increased income, growing family security, and the education of women, which together provide both the incentive and the means to limit population growth. This is often referred to as the 'demographic transition' that comes with development (Ibid, 2009).

Due to population age structure, family planning will take a generation or more to take effect, and thus will not substantially reduce emissions in the short term. Thus population measures, however necessary they may be in the long run, should not detract from the need for urgent reductions in emissions per person, especially where this is already high. Fostering energy conservation and low-

carbon technology therefore remain critical; especially in the short term until a demographic transition occurs globally (O'Neil, Mackellar et al, 2001).

The following are major adaptation approaches and measures used widely across the world;

➤ **Short-term Adaptation Measures**

This adaptation method is usually essential to initiate and encourage urgent response measures to prevent or mitigate short-term impacts that are already occurring and likely to arise from climate change.

➤ **Medium and Long-term Adaptation Measures**

These types of approaches are necessary to enhance adaptive capacity to prevent and mitigate possible impacts, by assessing the risks of impacts that may occur in the medium and long term, and by controlling the impacts, reducing vulnerability, and strengthening resilience.

➤ **Cross-Sectorial Adaptation Measures**

These are measures implemented with the intention of adapting to estimated impacts in specific sectors. Even in sectorial adaptation, it is essential to evaluate the risk-reduction effects, costs, and other relevant factors comprehensively. (E.g., new construction and functional improvements of embankments to cope with sea level rise and storm surges, soft (non- structural) measures such as improvements in tsunami and storm surge hazard maps, and strengthening of measures to prevent outbreaks of infectious diseases such as dengue fever.)

➤ **Integrated Adaptation Measures**

These approaches include integration of measures planned on a sectoral basis to a unified and effective adaptation plan, and enhancement of basic capacities of localities and sectors such as technologies and human resources. These should be implemented with a systematic and long- term perspective. (e.g., the identification of issues that require cross-sectoral approaches.)

➤ **Awareness-raising Adaptation Measures**

It is of fundamental importance to raise the awareness and understanding of the people and government agencies responsible for adaptation. These measures are important to identify the responsibilities, roles and collaborations among organizations both at national and local levels.

➤ **Information Consolidation Adaptation Measures**

These are institutional arrangements and methodology development for gathering, managing, and utilizing basic information on the target areas and sectors. They are the basis for planning and implementation of adaptation measures.

➤ **Research and Technology Development Adaptation Measures**

Research and technology development should be promoted in such areas as monitoring and projections of climate change, measures for the short-term, and the medium- and long-term adaptation effective to improve the resilience of local societies.

2.11 Actors in Environmental Protection

Environmental threats are produced and dealt with by organizations whose missions are broader than simply protection of the environment. Environmental agencies, however, have the mission of ensuring that producers do not forget their environmental responsibilities. Those responsibilities are to the third player in this process: the public.

Through the political process, the public caused an environmental policy to be put in place to protect health and the environment, and at the grass-roots level the public maintains oversight on the specific actions of both regulators and producers (Clarke, 2000).

➤ **The Private Sector**

The producers have a completely different set of responsibilities, the foremost of which is the fact that they must continue on with their production task in order to survive; environmental issues are a secondary concern. When a cleanup does become necessary, the producer must pay, and its payment comes out of its normal operating expenses.

To some degree, consumers will absorb some of this cost, but in general, passing on too much of the cost will simply drive the producer out of business (unless the producer happens to be a government agency). With limited discretionary funding available for environmental restoration, then, producers need to accomplish as much as possible with the resources they have (Ibid, 2000).

➤ **The Government**

Normally, government regulatory agencies act as enforcers. Once enforcement has occurred, however, one is faced with the need to restore the situation. Then, and especially in the case of the Superfund, the government becomes a “producer” and needs to act and think like one (Ibid, 2000).

Ideally, the role of governments vis-à-vis civil society is to take note of the concerns, and where necessary to mediate among often competing elements of society, before acting for the common good.

In particular, governments have a role to encourage cooperation and competition across a level playing field, with a long-term perspective, in the long-term interests of the whole society (Pittock, 2009).

Governments have a duty, therefore, to set standards, goals, and rules of behavior on an equitable basis. Governments can facilitate the attainment of goals, although in most cases actually achieving

change is up to individuals and groups, including businesses, consumers, and investor's and innovators. Policies and laws are only effective if civil society in the main wants them to work, otherwise they are empty rhetoric or worse (Ibid, 2009).

Issues such as climate change are highly complex, with imperfect information, highly technical and scientific connections, issues of human behavior and values, and large uncertainties. In the case of climate change this is further complicated by large time lags between actions regarding greenhouse gas emissions, and their eventual consequences, which may be large but delayed by decades to centuries (Ibid, 2009).

Modern democracies consist of representative governments usually elected for terms of three to six years. The electoral cycle for democratic governments is very short compared to the timescale on which climate change usually takes place. Moreover, politicians and the media too often focus on the short-term in terms of income, profits, taxes and jobs rather than on planning or investing for the following decades and generations. A key question is how longer- term thinking about cause and effect can be built in to the decision-making process, both of governments and of businesses.

In part this must come from an informed and highly educated electorate. Institutions that have a longer time perspective than the next election are vital, because they can bring a greater level of foresight to government and the political process (Pittock, 2009).

Examples include business companies and corporations, trade unions, trade and business associations, educational and research institutions, religious groups, environmental advocates, social justice advocates, professional bodies and many other associations, many with their own form of total or partial democracy. Collectively these groups are termed non-governmental organizations (NGOs). They, and their hopefully peaceful manner of operating, are often referred to as 'civil society' (Ibid, 2009).

➤ **The Public**

The public tends to be easily excited over health and safety issues, although a much smaller (but more active) group maintains vigilance over non-human health and natural resources, and a very small group is both active in and knowledgeable about global ecology issues. In addition, the public is concerned about jobs, general economic issues, property values, and the quality of life in communities.

Thus, the public concerns tend to be more diffuse than the single focus enjoyed by enforcers and producers. Because of that diffuseness, the public seldom speaks with a coherent voice, which makes it easier for activists and extremists on all sides of an issue to misrepresent or override the public will (Clarke, 2000).

➤ **Local and State Authority**

The Association of County Councils (1990) provides a summary of the environmental functions of local government, and places them into 5 main categories:

1. Prevention – i.e. development control, land use and emergency planning.
2. Regulation and control – i.e. waste disposal and pollution control.
3. Restoration, conservation and enhancement – i.e. in terms of transport facilities and nature conservation.
4. Monitoring and coordination.
5. Organizational – maximizing the environmental performance both within authority and through services provided.

The Audit Commission (1997) state that LAs will play a key role in preparing public opinion for the lifestyle changes that will be necessary to achieve environmental improvement in the future. Therefore, the LA provides the critical link between global legislation and policy, and its grassroots implementation. As a service provider LAs have a responsibility to provide for the welfare of the community. In environmental terms this includes the removal of substances such as waste and the prevention of activities which harm the environment (Nelson & Wright, 1995).

LA management of the environment is not a new phenomenon and is the third largest area of spending after social services and education (Ross, 1998). When considering large events the role of the LA will be to facilitate the organizer by providing advice and assistance and using its experience to educate. As a service provider the LA can prevent environmental damage before it occurs with appropriate planning. LAs capability to make a practical impact on the environment is particularly important in four areas; waste management, energy conservation, planning and transport, and pollution control (Ibid, 1997).

Local and state governments have authority over many areas affecting the environment, such as land-use planning, transportation, building standards, regulation of natural gas and electricity supply, air pollution standards and enforcement, and economic development. These regional and local authorities are thus able to exert pressure to minimize greenhouse gas emissions, encourage energy efficiency, and to foster renewable energy developments. They have also set standards and examples that others may follow (Pittock, 2009).

Globally, local governments have become actively involved, through the organization Local Government for Sustainability, formerly the International Council for Local Environmental Initiatives (ICLEI). ICLEI has over 875 member towns, cities, counties and municipal associations

in 70 countries and undertakes international campaigns, programs and regional projects on sustainable development, including the climate change issue (Pittock, 2009).

➤ **The Role of NGOs**

It is a legitimate and indeed necessary role of civil society to influence both governments' and voters, especially regarding longer-term issues. In democracies, such influence is subject to the will of all citizens at government elections (Ibid, 2009).

Like states, NGO diplomats have access to a number of resources that give them power in multilateral negotiations. Although, they rarely possess significant military capabilities, NGOs have considerable economic resources, particularly in the private sector. Some argue that it is not their economic resources per se that make business/industry actors powerful but their central position in national economies and the international political economy (Levy & Newell, 2005).

NGOs can make the following contributions (Agarwal, 2008):

- Conducting education and citizen awareness programs in the field of environment;
- Fact – finding and analysis;
- Filing public interest litigations;
- Innovation and experimenting in areas which are difficult for government agencies to make changes in providing expertise and policy analysis;
- Providing factual and reliable information with a network of professional expert staff;
- Remaining independent while passing relevant information to the public and governmental bodies;
- Solidarity and support to environmental defenders;
- Working in collaboration with the government for capacity building and promotion of community participation in environmental awareness and protection and
- Working out at the grass root level and reaching far- flung areas with or without the government invitation.

2.12 NGOs, Environmental Policies and Agreements

As stated before, environmental problems have been widely acknowledged as one of the most serious challenges mankind face in contemporary and future world. As a result, environmental issues have become one of the main concerns in international relations in recent years (Stalley, 2013).

It would be difficult to overstate the importance of the environment as a policy issue. Aside from the ecological implications of decisions in many “non environmental” policy fields, environmental policies have impacts on other policy fields. The recent controversy over whether protecting the spotted owl should weigh more or less heavily than protecting the jobs of timber industry workers is not going to be solved here. The important thing is to realize that environmental policies, often considered to be based on scientific analysis, must include consideration of nonscientific issues such

as fiscal realities, economic growth policies, and cultural values. Even race has surfaced as an issue in this field (Clarke, 2000).

Scientific research in the latter half of the twentieth century led many climate scientists to alert governments to the issue of climate change. This was done individually and through conferences and policy statements. This led to the setting up of the Inter-governmental Panel on Climate Change to provide policy-relevant scientific advice, and it led to discussion in the United Nations General Assembly (Pittock, 2009).

The General Assembly called for a UNFCCC in 1990. The Convention was finally adopted in New York in May 1992, and was opened for signatures at the Inter-governmental Conference on Sustainable Development, held in Rio de Janeiro in 1992.

Framework conventions are general agreements that leave the details of implementation to be worked out later via a series of protocols, legal devices or agreements to be adopted by the countries that signed the Convention. Up to late 2007, 193 countries have ratified the UNFCCC (Pittock, 2009).

As Pittock (2009), affirmed The UNFCCC contains no binding commitments on emissions levels, but it does lay down some general principles and objectives to shape future negotiations on these commitments. These include that:

Developed countries (most members of the Organization for Economic Cooperation and Development (OECD)) plus former communist states undergoing transition to a market economy, should take the lead with abatement measures.

The climatic and economic vulnerabilities of developing countries should be recognized.

Abatements, or emission reductions, should be consistent with sustainable development and not infringe the goals of an open and supportive international economy.

These provisions, and negotiations towards their implementation, have led to much argument between the countries that are parties to the Convention (and who meet as the 'Conference of Parties', or COP), especially over the contents and implementation of the Kyoto Protocol adopted in 1997. These arguments have been compounded by uncertainties as to the actual risk from climate change, and the costs of impacts and abatement measures. There has also been a clash of various national and corporate interests, ideological positions, and economic advantages. As at 12 December 2007, 176 countries had ratified the Protocol, with those agreeing to an emissions reduction target accounting for some 63.7% of world emissions. Australia agreed to ratify the Protocol following a change of government in November 2007. The one major country refusing to ratify the Protocol as of late 2008 is the United States (Ibid, 2009).

The Rio Declaration on Environment and Development, produced at the 1992 Earth Summit, consisted of 27 principles for future sustainable development around the world (Monteith & Unsworth, 2008). The Vienna convention for the protection of the Ozone Layer of 1985 is a multilateral environmental agreement that was ratified by 196 states, including all United Nations members and the European Union. It acts as a framework for international efforts to protect the ozone layer, but it does not include legally binding reduction goals for the use of CFCs, the main chemical agents causing ozone depletion. These are laid out in the accompanying Montreal Protocol (Ibid, 2008).

Every pollution control project has a legal component. The laws are complicated. It is difficult, but necessary; to learn the applicable rules and regulations and work within the legal constraints they impose. They will dictate which chemicals and substances are to be controlled, and they constrain the quantities and concentrations that maybe released into the environment. Some laws specify pollution control technology. Some prescribe analytical methods and how remedial investigations are to be done. They establish requirements for getting permits to discharge effluents and gaseous emissions and to transport and store solid wastes (Ibid, 2008).

The Kyoto Protocol is a first agreement to start the process of reducing greenhouse gas emissions, with very modest targets set for reductions in countries averaging 5.2% relative to 1990 emissions, to be achieved by 2008–12 (Pittock, 2009). The Kyoto Protocol is an international treaty that sets binding obligations on industrialized countries to reduce emissions of greenhouse gases. The goal is to prevent “dangerous” human-induced interference of the climate system (Ibid, 2008).

Many developed countries have agreed in two commitments periods. The first period applied to greenhouse gas emissions from 2008 - 2012. Developed countries may use emissions trading until late 2014-2015 to meet their first-round targets.

The second commitment period applies to emissions from 2013-2020, but this amendment has (as January 2013) not entered into legal force (Monteith & Unsworth, 2008).

The 37 countries with binding targets in the second commitment period are Australia, all members of the European Union, Belarus, Croatia, Iceland, Kazakhstan, Norway, Switzerland, and Ukraine. Japan, New Zealand, and Russia participated in Kyoto’s first round but have not taken on new targets in the second commitment period. The United States signed but did not ratify the protocol and Canada withdrew from it in 2011 (Ibid, 2008).

2.13 Review of Empirical Literature

Similar scholarly researches and assessments showed that, non-governmental organizations, in recent years, have grown in size and in number as a result of governmental negligence and financial

constraint towards the environmental crisis. NGOs have grown in importance to a point where they act as key arbitrating agents within the field of environmental policy. By interrelating global and local concerns, NGOs find themselves able to not only emphasize important ecological issues, but also raise consciousness about the environment.

Agarwal (2008), assessed that the very existence of NGOs and the role played by them in the protection of the environment is not only important but also necessary because no government alone with any amount of laws and acts can achieve the objectives of environment protection without individual and public participation which can be achieved only through a network of motivated and dedicated voluntary organizations, like the NGOs.

Similarly, studies in Ethiopia asserted the very existence of NGOs in environmental protection and strong partnership with government. Conclusions drawn from the studies showed that, NGOs are engaged in providing research, capacity building and policy support tools in areas where government presence is weak.

CHAPTER THREE

3.1 Research Methodology

Both qualitative and quantitative research methods were used in the thesis. Both descriptive and exploratory research techniques were applied. Both qualitative and quantitative data were gathered. Qualitative information was gathered through key informant interviews. To gather quantitative data for EMCS, semi-structured self-administered questionnaires were created. 40 responders in all were targeted, including 17 from a community and 23 from EMCS. A review of existing literature and EMC data was conducted in order to produce secondary data. The function of the chosen NGOs working on climate change adaptation and mitigation in Ethiopia was the main focus of the secondary document research.

3.2 Research Approach and Design

A case study research design was used in the thesis. The researcher employed a qualitative research strategy due to the small size of the samples and to gain a deeper knowledge and narrative description of the topic matter. The first conclusions drawn from the qualitative data were supported by a quantitative study design. Together, these methods allowed the thesis to quantify data numerically, triangulate the evidence gathered, and—above all—validate the facts and figures about the chosen instance of organizations.

3.3 Types and Sources of Data

Data came from both primary and secondary sources. Questionnaires given to chosen EMCs responders and in-depth interviews with important EMCs officials are examples of primary sources of data. A survey of the existing literature and secondary data from the chosen cases are examples of secondary sources of the information.

3.4. Sampling and Sample Size Determination

Out of EMCS, 40 respondents in total were selected for the sample. Respondents were chosen using a non-probability purposive sampling technique. This was due to the researcher's desire to speak directly to respondents who were familiar with environmental mitigation and protection as well as the activities of these organizations.

3.5 Research Methods and Instruments of Data Collection

Data was gathered using both primary and secondary sources. In-depth interviews and self-administered questionnaires are examples of primary sources of data, whereas reviews of EMCs published literature are examples of secondary sources.

- **Comprehensive Interview**

Using a semi-structured interview guide, selected staff members who were knowledgeable about the environmental protection and mitigation initiatives of the chosen NGOs were interviewed. EMCs' advisor, climate action and networking officer and project officer were the specific members of the organizations who took part in the interview. Because the primary individuals responsible for finishing a work pertaining to environmental protection and mitigation procedures, the interviewees were purposefully chosen.

- **Documentary Evaluation**

Scholarly study findings, publications, documents, write-ups, bulletins, and records maintained by EMCs are examples of secondary sources of data that were used to gather information on environmental protection and mitigation issues in relation to the techniques employed. The literature and documentation that are now available and pertinent to adaptation in particular and environmental protection in general were reviewed. Relevant organizations were personally visited in order to gather primary and secondary data.

- **Case Study**

One NGOs were chosen for this study due to time and resource limitations. A thorough examination of NGOs' contributions to environmental protection was not possible due to time constraints. The chosen organizations were picked because they are part of a network that includes local communities, civil society organizations (CSOs), and government entities. In a similar vein, EMCs collaborate with grassroots communities, such as districts and kebeles, CSOs, and government agencies to alleviate environmental damages. In addition to this, Fife works with governments and society to conduct research, host policy briefings, and evaluate needs. According to the researcher, these case studies offer insightful information on NGOs' coordinated efforts.

3.6 Methods of Data Analysis and Interpretation

Once the data has been collected, various data compilation techniques are used to transform the unprocessed data into a useful result. The raw data is quantitatively interpreted using SPSS. Techniques like charts, graphs, and tables are employed. According to the ideas and principles covered in the literature study, the secondary data that was gathered is interpreted and presented. The role of EMCs is described in detail, and the main conclusions are presented in a narrative and intelligible manner after a qualitative analysis. SPSS is used to evaluate the responses on the Likers scale. The results are then transformed into tables, charts, and graphs and interpreted appropriately. To provide an overview of the outcomes, a qualitative matrix is created.

3.7 Description of the Study Area

The Gurage Zone in central Ethiopia is home to Cheha Woreda, which has a variety of geographical features. The region, which includes plains, denes, and mountains, is located in the Ethiopian Rift Valley. Its environmental dynamics are told by its semi-arid climate, which is marked by distinct stormy and dry seasons. The Gurage ethnical group makes up the maturity of the pastoral population of Cheha Woreda. The main source of income is husbandry, and the original frugality is fueled by hobbies like crop product and beast keeping. Trade and small businesses are exemplifications of reciprocal on-agricultural conditioning that support profitable diversification. Roads, seminaries, health installations, and commerce are exemplifications of introductory structure and amenities that sustain Cheha Woreda's socioeconomic fabric. Still, there are obstacles including poor content and conservation problems, especially with regard to transportation structure.

CHAPTER FOUR

4. Data Analysis and Interpretation

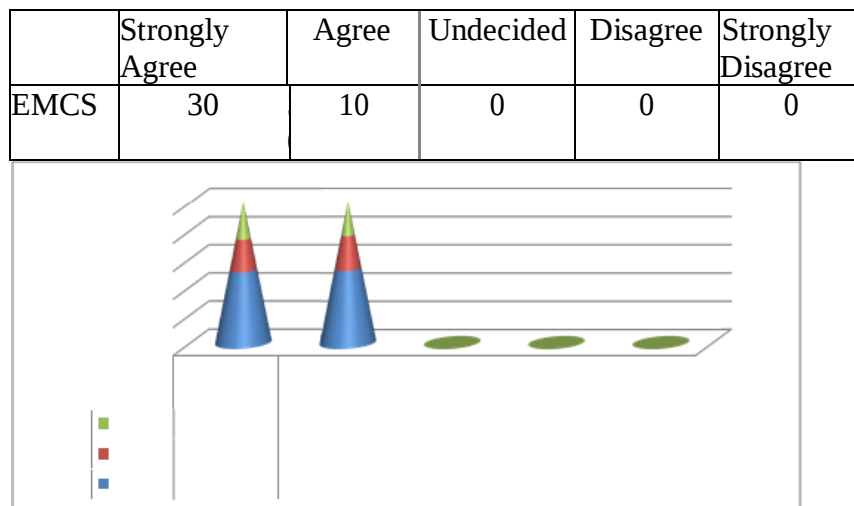
4.1 Introduction

In addition to reviewing papers, studies, and publications on the role of NGOs in environmental protection in the case of EMCs, this chapter discusses the information gathered from respondents. This chapter presents and discusses the results of the case studies, information obtained from the respondents, and an analysis of secondary data, all of which are connected to the literature study. A number of headers are used to present and explain the findings.

4.2 Environmental Protection, Climate Change and NGOs

Ethiopia is currently facing significant obstacles in its efforts to mitigate climate change and protect the environment. In order to address environmental issues and adapt to and lessen the effects of climate change, the researcher sought to determine whether the nation needs the assistance of non-governmental organizations. The following are the answers.

Fig.1 Environmental Protection, Climate Change and NGOs



Source: Field Survey, 2016

Out of all respondents, all agreed with the support of NGOs in environmental protection and in combating climate change effects. 62.5% of the respondents strongly agree with the direct involvement of NGOs in the environment protection sector as environmental problems and a change in climate are becoming the fastest-growing challenges Ethiopia is currently facing. Meanwhile, 37.5% of the respondents simply agree with the support of NGOs, which are specialized in mitigating, adapting, and alleviating climate change effects and environmental problems. This

clearly shows that there is a strong need for the support of NGOs in environmental protection as the government alone cannot tackle these challenges by itself.

Respondents were further asked to state the areas of risks that their organization is providing assistance to the government. Responses from EMCs are discussed below:

EMCs have been providing assistance in collaboration with different government-led and civil society organizations. EMCs, through its partnership with DRMFS, have integrated their approaches and project content into the roll-out of national disaster planning. These elements, as well as EMCs' LCA framework, have been incorporated into Woreda-level DRR planning. This has involved the development of guidelines, ToT, and support to Woreda to develop DRR and contingency plans. Through this work, EMCs are ensuring that national and local-level planners take climate change and other trends into account in DRR planning.

EMCs are working with MoEF to support the capacity of Woreda and regions to put national development plans into practice. EMCs are assisting with the design of Woreda-level CRGE investment plans. They have attempted to bring input from the local level into regional and national-level planning and implementation of CRGE.

EMCs are also proactively engaging civil society actors to see the benefits of linking DRR and CCA. Using a unique gradual training approach, stakeholders are being trained and coached on how to mainstream DRR and CCA into processes, policies, programs, and practices.

Similarly, EMCs is also involved in building the capacity of different government-led programs and projects. The government is contributing its share toward the process of climate mitigation and adaptation through the design of the CRGE strategy.

The development of renewable energy, especially hydro and wind power, among others, is a project that will have a huge impact on both mitigation and adaptation. According to information obtained from the climate action and networking officer, EMCs believes that the implementation of such projects will contribute to the region by supplying energy from green technology, which will, in turn, reduce the extent of emissions in the region.

Moreover, EMCs has been supporting the current initiative on SLM by the government. Their proposed project is to identify the specific needs of the community in the CRV of Ethiopia. In the CRV of Ethiopia, a number of achievements have been recognized by EMCs. These include complementing the initiatives that the communities are undertaking on SLM in the CRV, East Shoa Zone, and the Local Institutional Capacity Building Project, in which partnership and coordination with the government are strengthened.

EMCs are actively collaborating with governmental actors as well as environmental stakeholders in protecting the environment. As part of its effort to achieve its objective of making the environment cleaner, EMCs has been actively engaged in establishing local groups in different parts of Woreda. According to the information obtained from the project officer, the rationale behind the formation of the local groups has emanated from the belief that communities around the country have the willingness to make their environment safe but lack the capacity to do so.

Therefore, the establishment of the local groups is believed to help communities link up with EMCs, environmental stakeholders, and governmental actors. With this background, 12 such environmental activist groups have already been established in six regional states and Dire Dawa City Administration. The 12 local groups have obtained their own legal status, and EMCs is mainly involved in building their capacities by providing training, office equipment, and some financial assistance.

Moreover, EMCs creates and joins networks. At present, EMCs is the secretariat for ECSNCC, which comprises 58 organizations working on climate change-related issues. EMCs are also a member of the Ethio-EIN, chaired by the Federal EPA.

It is a fact that climate change is actually happening. The effects of climate change are fast becoming challenges to development and severely affecting the agriculture sector, which accounts for more than half of Ethiopia's economy. Temperatures are rising, and unpredictable rains are increasingly observed in some parts of the country. It is expected that these changes will continue and that extreme changes in climate will result in frequent and intense deforestation, drought, floods, and pollution.

Greenhouse gas emissions, the major causes of climate change, are emitted by both natural processes and human activities. These emissions negatively affect agriculture, forestry, energy production, and infrastructure in general. The government of Ethiopia cannot bear the challenges and consequences of climate change alone. There is a strong need for the active involvement of different environmental stakeholders. Environmental NGOs must be at the frontline to promote government and individual actions to limit human-induced climate change effects and promote sustainable environmental policies.

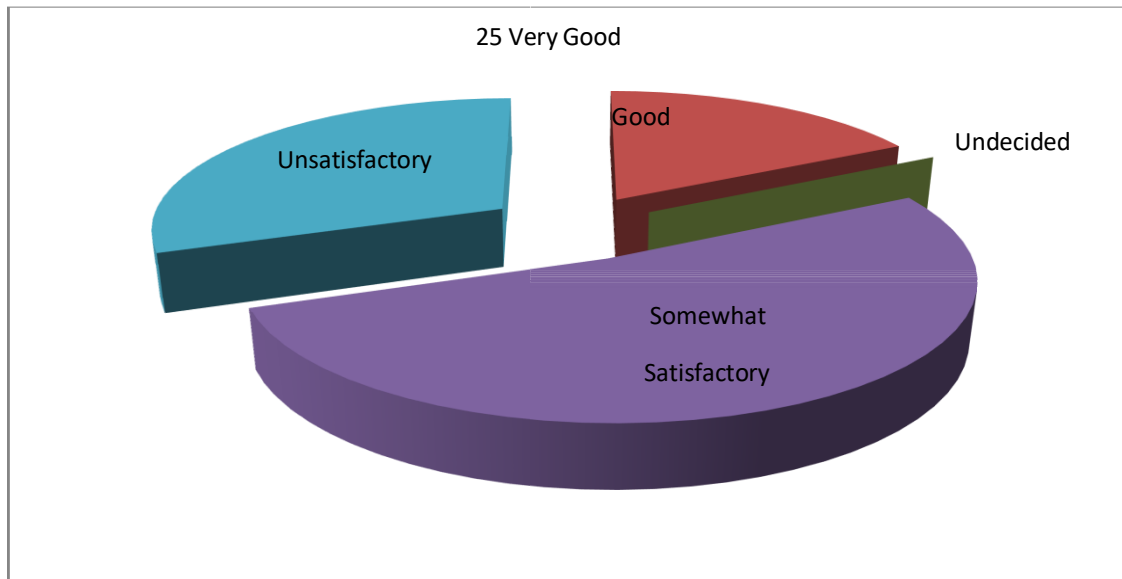
4.3 Government's Environment Policy Framework and Approach in View of EMCS

This section examines the perspectives of EMCS respondents on the effectiveness of government policies concerning environmental challenges, specifically deforestation, availability of freshwater, renewable energy, pollution, and climate change. Respondents were asked to evaluate the government's efforts using categories like Very Good, Good, Undecided, Somewhat Satisfactory,

and Unsatisfactory.

Out of twenty three (40) of EMCs respondents, four (25) constituting 80% of the participants were of the opinion that government deforestation policy framework and its enforceability is good. Ten (10) respondents constituting 52% of the sample respondents believed that policy framework, guidelines and their enforceability is somewhat satisfactory. Seven (5 participants were of the opinion that deforestation policy framework exercised by the government Enforceability system. These respondents constitute 60 % of the total participants.

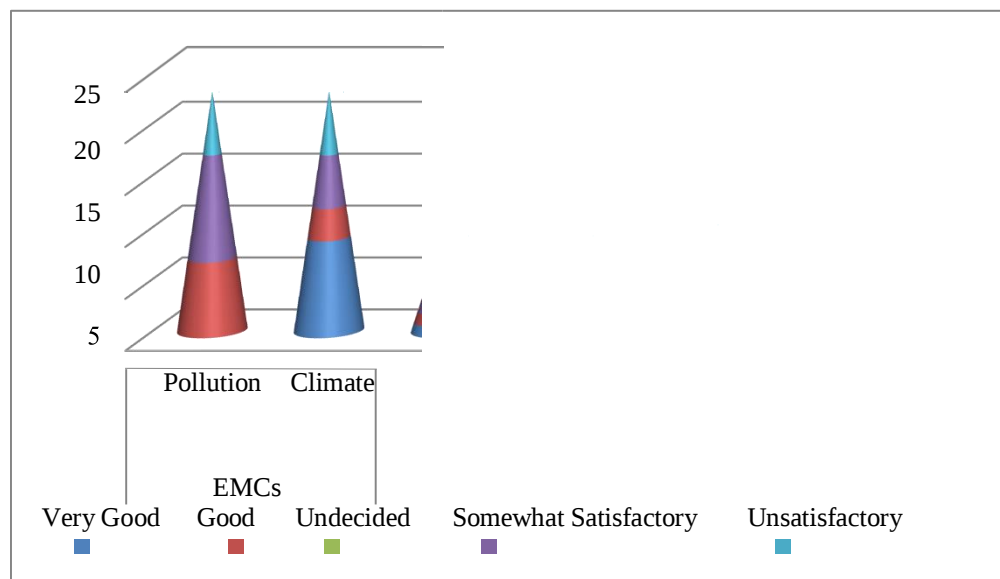
Figure 2: Policy Framework of Deforestation/EMCs



Source: Field Survey, 2016

Twenty percent of the sample, or three respondents, think that the government has put in place efficient procedures and regulations to lessen the effects of deforestation. Thirty-three percent of participants, or five respondents, believe that the government's deforestation measures are at least passably effective. In the meantime, two respondents, or 13% of the sample, believe that the policies, policies, and methods of the government are inadequate. Furthermore, five respondents have no opinion regarding the measures, tactics, and policy guidelines' sufficiency, efficacy, or enforceability.

Figure 3: Policy Framework of Pollution and Climate Change



Source: Field Survey, 2016

In regards to deforestation, freshwater availability, renewable energy, pollution, and climate change, respondents were asked to point out any shortcomings in EMCS's policy framework. Their observations exposed serious flaws in the way these pressing environmental issues were being handled. 13 participants, or 33% of the respondents, agreed that deforestation is still a developing problem in spite of policies and strategic actions.

The ongoing deforestation has resulted in significant degradation of more than half of EMCS's territory. Lack of a well-organized institutional infrastructure is one of the main causes. As of right now, EMCS does not have a separate forestry organization in charge of organizing, coordinating, supervising, and carrying out initiatives pertaining to forests. Additionally, 11 participants, or 27% of the responses, emphasized how important tree cutting is to rural communities' revenue, personal usage, and agricultural growth. The impact of climate change, biodiversity loss, and forest damage has all increased due to a lack of other livelihood options. Respondents underlined the necessity of an autonomous forestry organization and a thorough plan to provide rural communities with sustainable, automated alternatives in order to lessen this.

40% of respondents 16 participants stated that supplying clean drinking water and enhancing sanitation systems remain a persistent concern in relation to freshwater availability. Access to safe water is hampered by shortages and low quality, even in places with abundant water resources.

Furthermore, seven participants, or 18% of the respondents, identified a major contributing cause to these difficulties as a lack of investment in freshwater infrastructure. Due to poor water and waste management, there are severe shortages of clean drinking water, especially in rural regions. To address the rising demand for clean water, respondents advised the government and interested parties to give freshwater projects first priority when allocating funds and to put creative water management plans into place.

9 participants, or 22% of the respondents, pointed out that EMCS has significant resource and structural obstacles to exploiting its potential for renewable energy. Although renewable energy is essential for sustainable development and mitigating climate change, its use is still restricted. Respondents emphasized how crucial it is to gather resources and put in place sensible regulations in order to take use of EMCS's renewable energy potential in the long run.

Another major worry was pollution, as 28% of respondents 11 participants pointed out the negative consequences of manufacturing and industrial waste. The health of populations near rivers and water sources is at risk due to widespread surface and groundwater pollution brought on by improper disposal of industrial leftovers. Severe air pollution has also been caused by pollutants from factories, power plants, and automobiles. These issues are made worse by inadequate infrastructure and fast population increase. Establishing an effective pollution control system to handle waste disposal and lower emissions was highly suggested by respondents.

Finally, it was determined that deforestation, water shortages, pollution, and issues with renewable energy all had an impact on climate change. In order for EMCS to lessen the effects of climate change and adapt to them, respondents underlined the importance of developing a robust, integrated system to handle environmental issues. To guarantee a sustainable and resilient future for EMCS, better forest management, freshwater system investments, efficient renewable energy regulations, and pollution control measures are required.

4.4. NGOs and Environmental Issues

This was done in order to determine how concerned EMCs were about environmental issues such as pollution, climate change, freshwater availability, deforestation, and renewable energy. The following options were presented to the respondents: not at all, very little, average, more than average, and a great deal. The following are the responses.

4.4.1. EMCS's Degree of Concern for Environmental Problems

Table 1: Degree of Concern for Environmental Problems

Environmental Problems	Deforestation	Availability of Fresh Water	Renewable Energy	Pollution	Climate Change

Degree of Concern	Frequency	Percentage	Frequency	Percentage	Frequency
Not at All	5	12.50%	7	17.50%	0
Only a Little	12	30%	21	52.50%	0
An Average Amount	12	30%	7	17.50%	12
More than Average	8	20%	4	10%	19
A Great Deal	3	7.50%	1	2.50%	9
Total	40	100%	40	100%	40

Source: Field Survey, 2016

As seen from the table above, five (5) respondents, constituting 12.5% of the total respondents, indicated that EMCS's degree of concern for deforestation is "Not at All." Additionally, twelve (12) respondents, representing 30%, believe that there is only a little concern for deforestation by EMCS. Another twelve (12) respondents, comprising 30%, responded that there is an average degree of concern for deforestation; while eight (8) respondents (20%) expressed that there is a "More than Average" degree of concern. However, three (3) respondents (7.5%) indicated that there is a great deal of concern regarding deforestation, which suggests that EMCS is not highly involved in preserving forests, with the majority expressing a relatively low concern.

Similarly, regarding the availability of freshwater, the majority of respondents (52.5%) indicated that EMCS only has a little concern. Seven (7) respondents (17.5%) felt that EMCS had no concern at all about freshwater availability. Only four (4) respondents (10%) expressed that there was a more than average degree of concern, showing weak concern towards freshwater issues.

In contrast, when it comes to renewable energy, the responses showed a significantly higher level of concern. Nineteen (19) respondents (47.5%) believed that there was more than an average degree of concern for renewable energy, and nine (9) respondents (22.5%) thought there was a great deal of concern. A further twelve (12) respondents (30%) indicated that there was an average degree of concern, reflecting a strong level of attention from EMCS toward renewable energy.

Regarding pollution, the degree of concern was also high. A substantial 52.5% of respondents believed there was a more than average degree of concern, and 34.5% responded with an average amount of concern. Only 10% felt that EMCS had no concern for pollution, which suggests a substantial degree of attention being paid to this issue.

Finally, concerning climate change, the majority of respondents, 72.5%, indicated that EMCS showed a great deal of concern. In addition, 22.5% of respondents felt there was more than an average concern, and 5% indicated an average degree of concern. This overwhelming feedback

suggests that EMCS is highly concerned with climate change, with a majority seeing it as a primary focus.

4.5 NGO's Existence to Fill the Gap Observed in Fighting Climate Change by Government

Table 2: ENGO's and Gaps in Fighting Climate Change

Category	Respondents	Percentage %
Strongly Agree	16	40
Agree	24	60
Undecided	0	0
Disagree	0	0
Strongly Disagree	0	0
Total	40	100

Source: Field Survey, 2016

Climate change is one of the direst challenges the world is facing nowadays; the challenge is becoming the fastest-growing problem that most developing and African countries are struggling to cope with at present. Ethiopia, as a developing country, is facing the challenge of climate change due to a lack of material and human resources, which adds to the existing problems the country is confronting. The government of Ethiopia is taking different maneuvers toward alleviating the problem of climate change.

Respondents were asked to comment on the existence of environmental NGOs to fill the gap observed in fighting climate change by the government. They were made to choose one of the following: strongly agree, agree, undecided, disagree, and strongly disagree. The responses are as follows:

Out of 40 respondents from EMCS, 16 respondents, representing 40.0% of the total population, strongly agreed with the existence of NGOs to fill the gap observed in fighting climate change by the government. The rest, 24 respondents, constituting 60.0% of the total participants, simply agreed with the question.

The researcher observed that the majority of respondents from EMCS are in favor of the existence of NGOs to fill the gap observed in fighting climate change by the government. No respondents were

undecided, disagreed, or strongly disagreed, reflecting a unified agreement on the importance of NGOs in addressing this critical issue.

4.6. NGOs, Government, and Environment Protection

This section explores whether NGOs involved in environmental protection and preservation are effectively fulfilling their duties and responsibilities as prescribed in their roles. It also examines whether NGOs can supplement the efforts of the government in protecting the environment. Respondents were asked to indicate their level of agreement on these aspects by selecting one of the following options: strongly agree, agree undecided, disagree, and strongly disagree.

Table 3: Responsibilities of NGOs and Their Supplementary Characteristics

Category	NGOs Discharging Responsibilities	NGOs as Supplementary to Government
Strongly Agree	18	14
Percentage %	45	35
Agree	16	18
Percentage %	40	45
Undecided	6	8
Percentage %	15	20
Disagree	0	0
Percentage %	0	0
Strongly Disagree	0	0
Percentage %	0	0
Total	40	40
Percentage %	100	100

Source: Field Survey, 2016

The findings reveal that 45.0% of respondents strongly agreed that NGOs are effectively discharging their responsibilities in environmental protection, while 40.0% agreed with this notion. A smaller portion, 15.0% of respondents, remained undecided, indicating some uncertainty about the effectiveness of NGOs in fulfilling their prescribed roles.

When asked whether NGOs can supplement government efforts in environmental protection, 35.0% of respondents strongly agreed, and 45.0% agreed, signifying a general consensus on the supplementary role of NGOs. However, 20.0% of respondents were undecided, reflecting a level of indifference or lack of clarity regarding this aspect.

The responses highlight that a significant majority of participants recognize the critical role NGOs play in environmental protection and their potential to enhance government initiatives in this sector.

Nevertheless, the presence of undecided respondents suggests that further awareness and communication are necessary to address uncertainties about the roles and contributions of NGOs. These findings underscore the importance of NGOs as key stakeholders in environmental preservation, while also emphasizing the need for improved collaboration and information-sharing between NGOs, the government, and the public to maximize their impact

4.7. Climate Change Adaptation Approaches

The researcher aimed to identify which climate change adaptation approaches the Emdeber Catholic Secretariat (EMCS) is using to combat climate change. The approaches under consideration include short-term adaptation measures, medium and long-term adaptation measures, cross-sectorial adaptation measures, integrated adaptation measures, information consolidation, and research and technological development measures. Respondents were asked to rate EMCS's level of involvement in these approaches using the following scale: not at all, only a little, an average amount, more than average, and a great deal. The responses are summarized below.

4.7.1. Approaches Used by EMCS (Emdeber Catholic Secretariat)

Table 4: Climate Change Adaptation Approaches

Adaptation Measure	Great Deal	More Than Average	Average	Minimal
Research & Technological Advancements	82.60%	17.40%	-	-
Information Consolidation	17.40%	61%	22%	-
Awareness-Raising	47.80%	13%	26%	13%
Integrated Adaptation Measures	60.70%	-	13%	-
Cross-Sectorial Adaptation	-	22%	34.80%	43.50%
Medium & Long-Term Adaptation	-	48%	52.20%	-
Short-Term Adaptation	-	9%	78%	13%

Source: Field Survey, 2016

As shown in the chart above, 82.6% of respondents indicated that EMCS (Emdeber Catholic Secretariat) uses a great deal of research and technological advancements as a measure to combat climate change. Additionally, 17.4% of respondents believe that EMCS's involvement in research and technological development measures is more than average. Regarding information consolidation, 22% of respondents rated EMCS's involvement as an average amount, while 61% rated it as more than average. The remaining 17.4% of respondents believe EMCS is highly involved in this area, rating it as a great deal.

For awareness-raising adaptation measures, 47.8% of respondents believe EMCS is highly engaged in this area, rating it as a great deal. Meanwhile, 26% and 13% of respondents rated EMCS's involvement as an average amount and more than average, respectively. Only 13% of respondents believe EMCS's involvement in awareness-raising is only a little. In terms of integrated adaptation measures, 60.7% of respondents believe EMCS is more than averagely involved in this approach. Similarly, 22% of respondents rated EMCS's use of cross-sectorial adaptation measures as more than average. For medium and long-term adaptation measures, 48% of respondents believe EMCS's involvement is more than average, while 9% rated it as only a little.

Regarding short-term adaptation measures, 78% of respondents believe EMCS's involvement is an average amount, while 13% rated it as only a little. Additionally, 43.5% of respondents believe EMCS's involvement in cross-sectorial adaptation measures is only a little, and 13% rated its involvement in short-term adaptation measures as only a little. The researcher observed that EMCS is highly engaged in using research and technological development as a key approach to adapting to climate change. While cross-sectorial adaptation measures are less emphasized, integrated adaptation measures are used more than average by EMCS as a remedy to climate change effects

4.8. Suitable Climate Change Adaptation Approaches to Ethiopia in the Context of EMCs

Table 5: Suitable Climate Change Adaptation Approaches

Adaptation Measure	Total Count	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
Short-term Adaptation Measures	40	8.7	17.4	8.7	56.5	8.7	100
Medium & Long-term Adaptation Measures	40	26.1	73.9	0	0	0	100
Cross-Sectorial Adaptation Measures	40	8.7	8.7	39.1	43.5	0	100
Integrated Adaptation Measures	40	47.8	52.2	0	0	0	100
Awareness-raising Adaptation Measures	40	82.6	17.4	0	0	0	100
Information Consolidation	40	39.1	60.9	0	0	0	100

Research & Technological Development Measures	40	91.3	8.7	0	0	0	100
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Source: Field Survey, 2016

The researcher sought to identify the most suitable climate change adaptation approaches for Ethiopia based on responses from EMCs respondents. The findings highlight varying levels of agreement and disagreement regarding different adaptation measures, providing insights into the preferred strategies for addressing climate challenges in the country.

Short-term adaptation measures received limited support, with 56.5% of respondents disagreeing that they are suitable for Ethiopia. Only 8.7% strongly agreed with their effectiveness, suggesting that short-term solutions are perceived as inadequate for tackling the long-term and systemic nature of climate change. This lack of endorsement may stem from the recognition that climate adaptation requires sustained efforts rather than temporary fixes.

In contrast, medium- and long-term adaptation measures garnered strong approval, with 73.9% of respondents agreeing and 26.1% strongly agreeing that these strategies are suitable. The overwhelming support for long-term planning underscores the necessity of strategic, sustained efforts to build resilience and address the root causes of climate change over time. These findings highlight the preference for solutions that provide lasting benefits rather than short-term relief.

Cross-sectoral adaptation measures elicited mixed reactions. While 43.5% of respondents disagreed with their suitability, 39.1% remained undecided. This uncertainty may reflect the challenges of coordinating adaptation efforts across various sectors, including agriculture, water management, and energy. Despite their potential, cross-sectoral measures may require improved collaboration and implementation strategies to gain wider acceptance.

Conversely, integrated adaptation measures were widely supported, with 52.2% of respondents agreeing and 47.8% strongly agreeing with their suitability. The high level of endorsement highlights the perceived effectiveness of holistic approaches that consider the interconnected nature of environmental, social, and economic systems. Integrated strategies are valued for their ability to address climate change comprehensively rather than in isolation.

Awareness-raising adaptation measures emerged as the most strongly supported approach, with 82.6% of respondents strongly agreeing and 17.4% agreeing on their suitability. The near-unanimous endorsement underscores the critical role of education and awareness in fostering community engagement and driving behavioral change. Raising awareness is widely seen as a foundational step

in building a climate-resilient society, ensuring that adaptation efforts are understood and embraced by communities.

Similarly, information consolidation received broad approval, with 60.9% of respondents agreeing and 39.1% strongly agreeing that it is a suitable adaptation strategy. The strong support for information consolidation highlights the importance of data collection, analysis, and dissemination in shaping effective climate adaptation policies. Access to accurate and timely information is essential for decision-making at all levels, from local communities to national policymakers, ensuring that adaptation measures are evidence-based and well-informed.

Research and technological development measures received the strongest endorsement, with 91.3% of respondents strongly agreeing and 8.7% agreeing on their suitability for Ethiopia. This overwhelming consensus underscores the vital role of innovation and scientific research in developing new technologies and strategies to combat climate change. Investments in research and technology are widely viewed as essential for addressing Ethiopia's unique climate challenges and fostering long-term resilience.

4.9. The Necessity of NGOs in Environmental Protection

This section examines the necessity of environmental NGOs in environmental protection and their direct relationship with progress in climate change. Respondents were asked to choose from the following options: strongly agree, agree undecided, disagree, and strongly disagree. The responses are as follows:

As observed from the data, a total of 69.6% of respondents from EMCs strongly agree with the necessity of NGOs in environmental protection. Additionally, 30.4% of EMCs' respondents agree with the necessity of NGOs in this sector. However, 40% of the total respondents remain indifferent about whether the existence of NGOs in environmental protection is necessary. On the other hand, 20% of respondents strongly disagree with the necessity of NGOs in environmental protection. These findings indicate that the presence of NGOs in the environmental sector is widely perceived as essential, as confirmed by the majority of respondents.

Furthermore, respondents were asked whether they believe there is a direct relationship between the existence of NGOs and progress in climate change adaptation. The data shows that 52.2% of respondents from EMCs agree that NGOs play a direct role in climate change progress. Additionally, 26.1% of respondents remain indifferent on this matter.

4.10. Impact of Human and Natural Process on Environment in view of EMCS

Argument 1

Are humans responsible for global warming?

Human activities contribute to global warming by enhancing earth's natural greenhouse effect. Most climate scientists argue that the main cause of the current global warming trend is human expansion of the greenhouse effect. The burning of coal, oil and natural gas well as various agricultural and industrial practices, are altering the composition of the atmosphere and contributing to a change in climate. These human activities have led to increased atmospheric concentrations of a number of greenhouse gases, including CO₂ in the lower part of the atmosphere. Carbon dioxide is a greenhouse gas that warms the atmosphere since pre-industrial times, atmospheric CO₂ concentrations have been and is increasing extraordinarily. Researches demonstrate that the increased CO₂ in the atmosphere comes from burning fossil fuels and forests. At the same time since pre-industrial times, global average temperatures have been increasing. Emission of CO₂ is caused by several reasons; it is produced when coal, oil and natural gas are burned to produce energy used for transportation, manufacturing, electricity generation and other functions. Land clearing for logging, ranching and agriculture, also lead to CO₂ emissions.

In general human activities, such as the burning of fossil fuels and changes in land use, have increased the abundance of small particles in the atmosphere which change the amount of energy that is absorbed and reflected by the atmosphere.

Argument 2

Is nature responsible for global warming?

Natural processes emit large quantities of CO₂ which constitutes natural sources; like, volcanoes, into the atmosphere. Natural process that have caused global warming include; increases in the energy emitted by the sun, continuous change in earth's orbital patterns and volcanic eruptions that are capable of producing ash and Sulphur dioxide. It is reasonable to assume that changes in the sun's energy output would cause the climate to change, since the sun is the fundamental source of energy that drives our climate system. The amount and distribution of solar energy that earth has received, due the earth's natural orbital variations, is thought to be responsible for triggering major climate change. The variation in earth's orbital patterns follows cyclical patterns that take thousands of years to repeat. The point the earth is at in the cycle changes the distribution of solar radiation, and therefore, cooling or warming, in different parts of the world. The view point of EMCs advisor, climate action and networking officer and project officer, is summarized as follows; Human activities result in emissions of greenhouse gases which are attributable to human activities. The releases have increased from fossil fuel used to transportation and manufacturing industries. Deforestation, agricultural activities, fertilizers, fossil fuel burning and landfills are also the main causes of greenhouse gases.

In Ethiopia, agriculture is the dominant sector where most of the population makes their livelihood out of it. Ethiopia's agriculture is affected by periodic draught, soil degradation, overgrazing, deforestation and high population and this has led to a change in climate. Moreover, and Ethiopia in its attempt to be registered in the middle income generating countries is strongly engaging in undertaking developmental activities as well as in industrial expansion. However, the cost of the developmental activities is seen to be outweighing the benefits of the initiatives. Anthropogenic impacts on the environment can be reduced if not fully addressed. Emission of greenhouse gas like that of carbon dioxide can be best controlled by putting restriction on industries and manufacturing industries. Other agricultural as well as environmental problems can be reduced through awareness raising, training and capacity building. On the contrary, natural hazards like that of; earthquake, floods, storms and tsunamis, occur naturally and unexpectedly and it is difficult to control as well as to manage the source as well the impacts.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The environment is a place where both living and non-living things reside in; it is a place where communities extract resources for their livelihoods. Through the process of living, the environment is severely affected by the act of human beings and natural process. Ethiopia's environmental resources which had been the main source of the country's economic growth are being destructed constantly; this calls for a need for environmental preservation and conservation.

In Ethiopia, governmental actors as well as environmental organizations are working towards; the protection of the environment and climate change adaptation and mitigation acts. Recently environmental NGOs have been involved in the protection of the environment in general and adapting and mitigating climate change effects in particular. The purpose of this chapter is to round off the study with conclusions and recommendations. The chapter will review and summarize findings from selected case studies, discuss their implications in the study and forward recommendations in areas where the researcher observe possible gaps.

The Emdeber Catholic Secretariat plays a crucial role in environmental protection in Cheha Woreda, Gurage Zone, by addressing key environmental challenges, promoting sustainable development, and enhancing community well-being. Through collaboration with local residents, government institutions, and other NGOs, it has contributed to natural resource conservation, environmental awareness, and eco-friendly practices.

Community engagement is central to its initiatives, fostering ownership and participation in decision-making and implementation. However, challenges such as limited resources, cultural barriers, and resistance persist. Overcoming these requires innovative strategies, strengthened partnerships, and investment in education, capacity building, and sustainable livelihoods. By enhancing collaboration and policy advocacy, stakeholders can drive impactful environmental conservation efforts, ensuring resilience and sustainability for future generations.

5.2. Recommendations

Therefore, based on this study, the following recommendations are forwarded.

- Enhance Collaboration: Strengthen partnerships between NGOs, government, and local communities for resource-sharing and coordinated efforts.
- Boost Community Engagement: Involve locals in decision-making and project implementation to foster ownership and empowerment.

- Promote Sustainable Livelihoods: Provide eco-friendly income sources like agroforestry and renewable energy to reduce environmental harm.
- Increase Awareness: Conduct education campaigns to raise environmental awareness and encourage eco-friendly practices.
- Secure Funding: Seek more financial and technical support from governments, donors, and private sectors for environmental projects.
- Strengthen Policies: Advocate for and support the enforcement of robust environmental policies and regulations.
- Invest in Research: Collaborate with academic institutions to develop innovative solutions for environmental challenges.
- Address Cultural Barriers: Use culturally sensitive approaches to overcome social and language barriers in conservation efforts.
- Monitor Projects: Implement robust monitoring and evaluation systems to track progress and improve project outcomes.
- Promote Gender Equality: Ensure women's active participation in environmental initiatives for more inclusive and effective outcomes.
- Foster Innovation: Embrace adaptive management and innovative technologies to address emerging environmental issues.
- Advocate for Climate Action: Support national and global climate policies and help communities build resilience to climate change.

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APPENDICES

Annex I: Interview Questions

Title: The Role of EMCS (NGO) in Environmental Protection: A Case Study of Cheha Woreda, Gurage Zone

Introduction:

Thank you for participating in this survey, which aims to assess the role of EMCS (NGO) in environmental protection in Cheha Woreda, Gurage Zone. Your responses will provide valuable insights into the effectiveness of EMCS's initiatives and help identify areas for improvement. All responses will remain confidential and will only be used for research purposes. This survey should take approximately 10–15 minutes to complete.

Section1: Demographic Information

Please tick (✓) where appropriate.

1. Age:

- ☐ 26–40
- ☐ 41–60

2. Gender:

- ☐ Male
- ☐ Female

3. Occupation:

- ☐ Community Member
- ☐ Government Official
- ☐ NGO Staff/Volunteer
- ☐ Business Owner/Entrepreneur
- ☐ Academic/Researcher
- ☐ Other (please specify):
.....

Section 2: General Awareness of EMCS (NGO) and Its Activities

1. Are you aware of the EMCS (NGO) and its environmental protection initiatives in Cheha Woreda?
- ☐ Yes

- ☐ No
- 2. If yes, how did you learn about EMCS (NGO) and its activities? (Please specify):
.....
.....

Section 3: Perceptions of EMCS (NGO)’s Role

1. In your opinion, what is the primary role of EMCS (NGO) in environmental protection in Cheha Woreda? (Tick one or more options)
 - ☐ Advocacy and awareness-raising
 - ☐ Community engagement and empowerment
 - ☐ Policy advocacy and implementation
 - ☐ Conservation and restoration projects
 - ☐ Other (please specify): _____
2. How effective do you perceive EMCS (NGO) to be in fulfilling its role in environmental protection?
 - ☐ Very effective
 - ☐ Somewhat effective
 - ☐ Neutral
 - ☐ Somewhat ineffective
 - ☐ Very ineffective

Section 4: Impact and Effectiveness of EMCS (NGO)’s Initiatives

1. Have you personally participated in any environmental protection activities organized by EMCS (NGO) in Cheha Woreda?
 - ☐ Yes
 - ☐ No
2. If Yes, please describe your experience and the impact you believe these activities had:
.....
3. Have you noticed a positive impact on the environment in Cheha Woreda as a result of EMCS (NGO) initiatives?
 - ☐ Yes

- ☐ No
- 4. Do you believe EMCS (NGO)'s activities have effectively raised awareness about environmental issues among community members in Cheha Woreda?
 - ☐ Yes
 - ☐ No
- 5. Has EMCS (NGO) been successful in mobilizing community participation in environmental protection efforts?
 - ☐ Yes
 - ☐ No
- 6. Do you think EMCS (NGO) has effectively influenced local policies or regulations related to environmental conservation in Cheha Woreda?
 - ☐ Yes
 - ☐ No
- 7. Have you personally witnessed improvements in the overall environmental health of Cheha Woreda due to EMCS (NGO) initiatives?
 - ☐ Yes
 - ☐ No

Section 5: Challenges and Recommendations

1. In your opinion, what challenges does EMCS (NGO) face in achieving its environmental protection goals? (Please specify):

.....

What recommendations would you provide to improve EMCS (NGO)'s effectiveness in environmental protection?.....

.....

.....

Section 5: Suggestions for Improvement

this section seeks to gather your feedback and recommendations to enhance the role and effectiveness of EMCS (NGO) in environmental protection in Cheha Woreda. Please answer the following questions:

1. What do you think are the strengths of the EMCS (NGO)'s environmental protection initiatives in Cheha Woreda?
(Openended).....
.....
...
2. How do you think the EMCS (NGO) could improve its effectiveness in promoting environmental protection in the area?
(Openended).....
.....
...
3. What aspects of the EMCS (NGO)'s environmental protection initiatives in Cheha Woreda do you consider particularly effective or successful?(Open ended).....
.....
4. From your perspective, what are the key strengths of EMCS (NGO) in implementing environmental protection projects in Cheha Woreda?
(Openended).....
.....
...
5. In what ways do you think the EMCS (NGO) could enhance its community engagement efforts to better promote environmental protection awareness?
(Openended).....
.....
...
6. Are there any specific areas within environmental protection that you believe the EMCS (NGO) should focus on more in Cheha Woreda?
(Openended).....
.....
...
7. How do you think the EMCS (NGO) could improve collaboration with local stakeholders, such as community members, government bodies, or other organizations, to achieve better outcomes in environmental protection?

(Openended).....

.....

8. Can you suggest any innovative approaches or strategies that the EMCS (NGO) could adopt to address emerging environmental challenges in Cheha Woreda?

(Openended).....

.....

...

9. What obstacles or challenges do you think the EMCS (NGO) faces in effectively carrying out its environmental protection initiatives? How could these challenges be overcome?

(Openended).....

.....

...

10. What resources or support do you think the EMCS (NGO) could benefit from to enhance its effectiveness in promoting environmental protection in Cheha Woreda?

(Openended).....

.....

...

11. How do you think the EMCS (NGO) could better communicate its achievements and impacts in environmental protection to the local community and stakeholders?

(Openended).....

.....

...

12. Are there any specific areas of improvement or gaps in the EMCS (NGO)'s current environmental protection projects that you believe need attention?

(Openended).....

.....

13. Do you have any additional suggestions or recommendations for EMCS (NGO) to strengthen its role in environmental protection in Cheha Woreda?

(Openended).....

.....

...

14. What role does your organization play in the fight against climate change in Ethiopia?

(Open-ended)

15.

.....

16. The NGOs engaged in the fight against climate change are properly discharging their responsibilities as prescribed in their roles.

(Please select one option)

- ☐ Strongly Agree
- ☐ Agree
- ☐ Undecided
- ☐ Disagree
- ☐ Strongly Disagree

17. Environmental protection activities can be regarded as supplementary to what the government is doing in the same sector.

(Please select one option)

- ☐ Strongly Agree
- ☐ Agree
- ☐ Undecided
- ☐ Disagree
- ☐ Strongly Disagree

18. What major challenges has your NGO faced in the course of its activities? Please list them below.

(Open-ended)

.....
.....
.....