

**SUSTAINABLE LIVELIHOOD AS AN IMPORTANT FACTOR IN
FOOD SECURITY AND COMMUNITY DEVELOPMENT
IN BOGOS REGION – ERITREA**

I DEDICATE THIS THESIS STUDY TO

MY BELOVED FATHER

MEMHIR GHEBREYESUS CHEWAY

FOR HIS DEDICATION AND CONTRIBUTION TO

HIS FAMILY AND THE COMMUNITY AT LARGE

AND

TO MY BELOVED SONS

ZENAWI THOMAS CHEWAY AND ABIEL THOMAS CHEWAY

TO KNOW THEIR ROOTS AND BE ACTIVE IN CONTRIBUTING TOWARDS THE

SUSTAINABLE DEVELOPMENT OF THEIR COMMUNITIES.

**SUSTAINABLE LIVELIHOOD AS AN IMPORTANT FACTOR IN
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IN BOGOS REGION – ERITREA**

By

Thomas Ghebreyesus Cheway

A thesis submitted to the Faculty of Graduate Studies of the University of
Manitoba in partial fulfilment of the requirements for the degree of
Master of Natural Resources Management

Natural Resources Institute
University of Manitoba
Winnipeg, Manitoba

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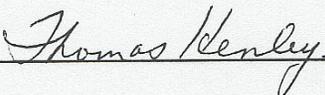
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The undersigned certify that the oral examination presented has been approved and that they have read, and recommend, to the Faculty of Graduate Studies for acceptance, a thesis entitled: *"Sustainable Livelihood as an Important Factor in Food Security and Community Development in Bogos Region - Eritrea."*

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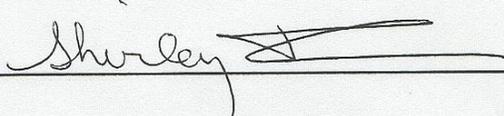
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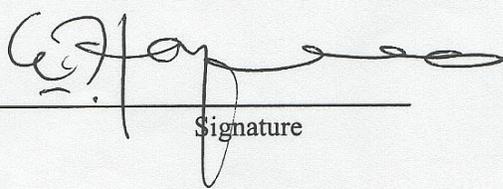
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Abstract

The primary objective of this study was to analyze and to determine the sustainable livelihood issues in the Bogos Region of Eritrea that play an important role in achieving long term food security and sustainable community development in the region. Bogos is one of nine tribes in Eritrea. Bogos people are known as Blin, which can be used to refer to the people as well as their language. Bogos is located at the central part of Eritrea where the western plains and the central range of mountains meet.

The author being born and raised in Bogos, used Bogos as an example to show that sustainable livelihood is an important factor in food security and community development generally in the developing world. Despite the unique socio-cultural aspects of Bogos, most of the study also applies to many communities in Eritrea. As part of the developing world, almost all communities in Eritrea rely upon natural resources for their livelihood and related socio-cultural activities. Given that, to achieve and maintain sustainable livelihood that ensures long term food security of the communities in Eritrea, it is important to have community based research like this, which focuses on individual communities and address their specific socio-economic issues.

In the case of Bogos communities, the finding of this study show natural resources and related activities are the corner stone not only in rebuilding the war torn infrastructure and institutions, but also in achieving sustainable livelihood and maintaining sustainable community development in the region. Water resource and water related issues are identified as the overriding factors, which affect other natural resources availability, utilization, and development in achieving sustainable livelihood and long-term food security in the region. As its findings, the study also addressed the wide range other important natural resource factors that contribute to the sustainable livelihood of people in Bogos namely: livestock, vegetation and forestry, as well as cropping and gardening.

The socio-cultural issues of Bogos people were also found to have an impact on the sustainable development of the region. The unique and interesting socio-cultural activities of Blin communities, that have a high impact on the sustainability of their livelihood, should be addressed and respected. Further, the study identifies drought and malaria as ecological stressors. While war, lack of capital investment and trained manpower constitute non-natural stressors to the sustainability of Bogos people's livelihood and community development.

Overall, the study proposes and recommends a specific action plan for maintaining sustainable livelihoods and long-term food security in the region. Community based sustainable development that applies an integrated and holistic approach based on adoptive management principles is recommended as the best alternative to the unsuccessful top-down approach. Community based sustainable development would assure the sustainability of the local people's livelihood leading to measurable success and increased food security in the region.

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CHAPTER ONE

INTRODUCTION

1.1 Preamble

This research study is focused on sustainable livelihood as an important factor for food security and community development in Bogos Region – Eritrea. The research had as its primary objective to determine the sustainability of the main livelihood factors of the region in order to ensure long-term food security and community development in Bogos - Eritrea. The study provides an assessment of the natural resources and socio-economic activities of the Bogos people. Further, it discusses the major stresses on the region’s livelihood and local adaptive strategies. At the end of the analysis the research study presents an action plan appropriate to the needs of the Bogos people. It recommends a community based approach to development, as well as a combined adaptive and integrated approach to achieve a sustainable livelihood that will assure long-term food security and healthy community development in the Bogos region.

1.2 Background

1.2.1 Country – Eritrea (East Africa)

Eritrea is the newest country in Africa. After being colonized by Turkey, Italy, Anglo-Egypt, and recently Ethiopia for centuries, Eritrea won its independence in 1991, after a 30-year war with Ethiopia. Eritrea was officially recognized as an independent state by the world community in 1993 following a United Nations (UN) sponsored legal referendum that voted overwhelmingly for its independence.

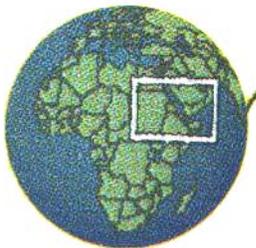


Figure 1– Map of Eritrea

As noted from the above map, Eritrea is strategically located along the world's busiest shipping lanes in north-eastern Africa between 12° south to 18° north latitude and between 36° and 44° east longitude. It is bounded on the east by the Red Sea and the oil rich Arab countries, on the southeast by Djibouti, on the south by Ethiopia, and on the north and west by Sudan. Eritrea covers 125,000 sq km and is thus approximately the size of England. The region retained the entire coastline of Ethiopia along the Red Sea upon its legal independence from Ethiopia on 24 May 1993. The Red Sea coast stretches some 1,200 km, and it is from this body of water that the country derived its name (*Erythraea*, Greek for “red”) reflecting the red sand on the shoreline. On its Red Sea coastline, Eritrea controls two deep-water ports and shipping lanes in the world’s busiest shipping lane that connects the oil rich Arab countries, Europe, and Asia. These two ports of Eritrea have also been the principal lifelines for humanitarian assistance to the Horn of Africa.

Eritrea's population is diverse, reflecting many languages, cultures, and religions. It consists of nine different tribes: Tigriña, Tigre, Bilin, Saho, Afar, Kunama, Reshida, Nara, and Beja. The most widely spoken languages are Tigriña and Tigre. However, Tigriña, English, and Arabic are the official languages of Eritrea. In 2002 Eritrea had an estimated population of 4,450,000 with a population density of 37 persons per sq

km. An estimated 81 percent of Eritrea's population lives in rural areas, engaged in pastoral and subsistence agriculture.

Eritreans are religious people with approximately half Christian and half Moslems. Some of the dominant religions in Eritrea are Coptic Orthodox, Catholics, Protestants, and Sunni Moslems.

Eritrea is potentially rich in natural resources such as potash, silver, gold, copper, natural gas, petroleum, and sea resources. However, its people are its main resource, with their determination to succeed, their self-reliance, and their strong work ethic. As Paice (1996) put it, “The people are the country’s greatest asset, and their determination to rebuild the country is matched only by their courage in fighting for so long for their freedom, largely unheeded by the rest of the world. It is a truly remarkable story of human resilience.” USAID (2000) has identified the country’s strength as including the following: a motivated work force, a committed and non-corrupt government, mineral and petroleum reserves, agriculture, fisheries, and potential in manufacturing, tourism, and banking.

1.2.2 Region – Bogos (Anseba Province)

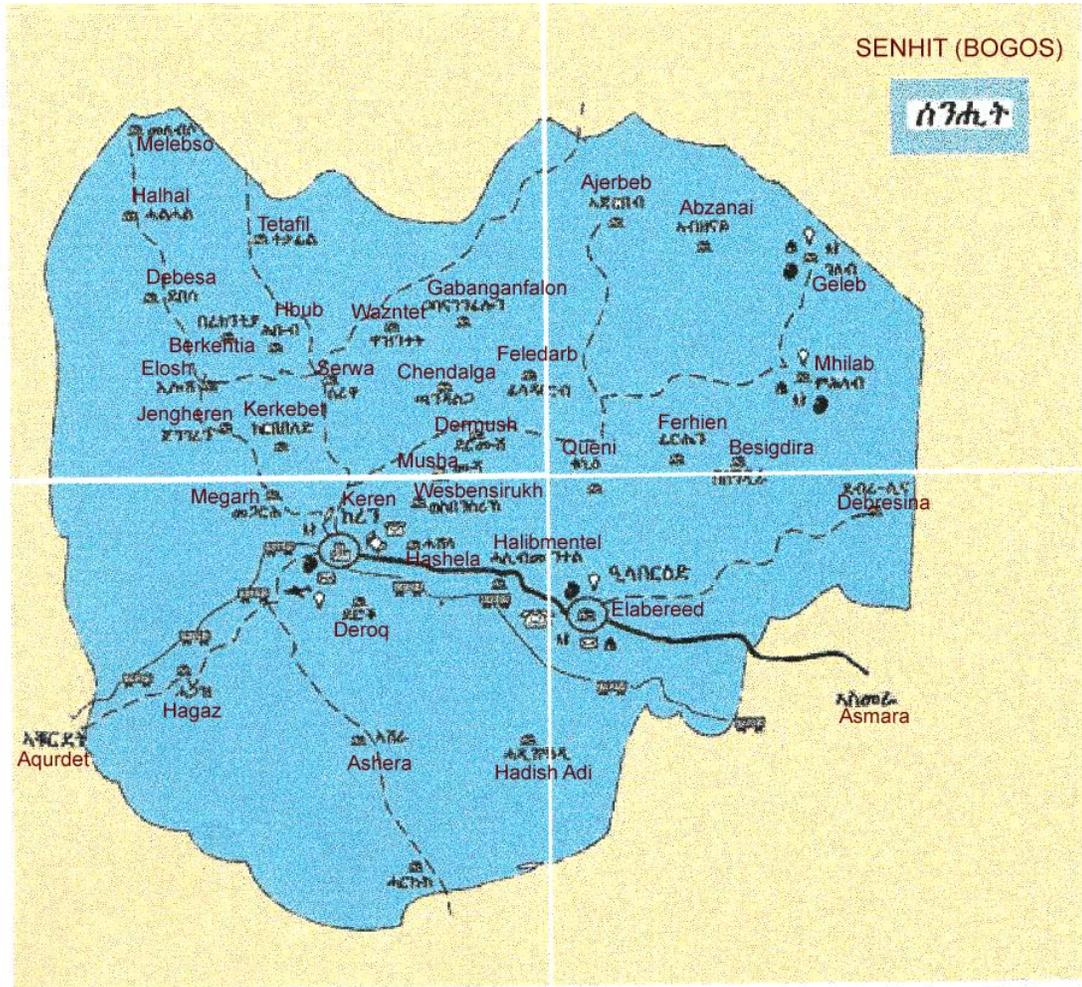


Figure 2 - Map of Bogos region in Eritrea

The word “Bogos” means the land of Blin. It has direct connotation to Blin communities. It is the region of local people within the Anseba Administrative region. Located in the centre of Eritrea, it connects the Highlands and the Lowlands of Eritrea. In the new administrative zone, most of Bogos falls under Anseba province, which borders with Gash-Barka in the southwest, and with Northern Red Sea in the northeast,

with a total area of approximately 12000 sq km. Nowadays, Bogos embraces mainly the Blin, Menssaa, Tigre, and Tigrigna speaking tribes. However, it is beyond the mandate of this study to discuss about all these tribes, as it would be impossible to cover them in sufficient depth. Since the author had to focus on a specific community, he chose the Blin communities of Bogos as the main study area of this research. Living in the same region, however, despite all the socio-cultural differences, the tribes mainly depend on the same livelihood–agro-pastoral activities. Given that reality, most of the analyses and findings of this study apply to the different tribes that live in Bogos and beyond.

Blin communities of Bogos have an estimated population of 84,000, which is about 2.1 percent of the total population of Eritrea. Historically, the people of Bogos live in well-settled communities. Keren being their capital city, the Blin of Bogos have settled in many small to large villages. The people of Bogos mainly depend on agro-pastoral subsistence farming for their main livelihood. They speak a unique tribal language called “BLIN”. The name Blin can refer to the language as well as to the people. Thus, in this study, Bogos and Blin will be used interchangeably.

1.3 Purpose Statement

Both the 30-year independence war and the recent 1998 border conflict war with Ethiopia not only cost thousands of lives but also had a serious impact on the Eritrean economy and infrastructure as well as its environment. Both wars forced the people of Bogos to live in poverty and more than 80 percent of the population now has no access to safe water and proper sanitation. Further, most of Bogos's institutions, infrastructure and agricultural sector were destroyed, and the region is faced with major natural resources and environmental problems that threaten the livelihoods and food security of the people.

According to the World Bank (1996), 69 percent of the Eritrean population live below the poverty line. Also a survey by the Ministry of Agriculture (1999) revealed that 44 percent of children under the age of 5 are undernourished, and only 7 percent of the population has access to safe water and sanitation. Food self-sufficiency rations were as low as 10 percent and average per capita income probably did not attain 100/year. Family assets consisted mainly of animals, very rudimentary households goods, and houses made of straw and wood/stone. Animal assests are exceptionally risky as they are likely to be lost in arid years when pasture yields are low.

The people of Bogos who live in a semi arid or arid area of central part Eritrea are part of the Zoba Anseba administrative zone that has been hit hard by persistent droughts in the past several centuries. Under the joint auspices of Government and the United Nation, with participation from the NGO community, an Annual Needs Assessment (ANA) team (2000) found that an estimated 269, 835 persons in rural Anseba were directly affected by drought in 2001. In the past century they were victims of war, and many famines and droughts forced them to depend on external donations, with the result that the majority of Bogos people live below the subsistence level. This cycle of food insecurity and malnutrition of children, women, and the elderly will end only by having a long-term adaptive sustainable livelihood solution that deals with the main factors of food security and community development. Once there is a solution to the water scarcity of the region, and all the sustainable livelihood factors are in place, the people of Bogos can be self-reliant and contributors to the well-being of the society as a whole. This research study will help the Eritreans and their partners in the pursuit of sustainable development by showing them how to base their decisions on an understanding of sustainable livelihood factors, thereby enabling the Bogos people of Eritrea to be self-reliant and in the long run overcome their poverty.

1.4 Objective

The broad objective of this research is to assist the people of Bogos Region - Eritrea in determining the sustainable livelihood factors that assures a long-term food security and community development in the region. Specific objectives include:

- 1) To develop a community profile of Bogos region by identifying and assessing the ecosystem and the natural resources of the region and the unique socio-economic activities of the people of Bogos that are vital for achieving long-term food security in the region, and sustainable livelihoods.

- 2) To analyze and determine the different natural resource factors in the region including the main issues of water scarcity that have high impact in the Blin communities' livelihoods in achieving long term food security and community based sustainable development.

- 3) To assess and present the importance of the unique socio-cultural aspects of the Blin Community in sustaining community based economic development.
- 4) To assess and determine the major ecological and socio-economic stresses on Bogos people's livelihoods and the traditional coping mechanisms.
- 5) To recommend and present an action plan appropriate to the needs of the Bogos people. This plan will include both a community based development approach and a combined adaptive and integrated approach to ensure sustainable livelihoods in securing a long term food security and community- based economic development.

1.5 Methods

The researcher born and raised in Bogos region of Eritrea and employed good understanding of the region, in the research design. The research methodology included: field trip to Bogos region of Eritrea; interviews of local Bogos people; meetings, discussions, and interviews of different levels of government and NGO staffs. Due to the past history and circumstances of the war and the inhumane acts of the Ethiopian military, there are many people originally from Bogos are, understandably, live in the diaspora in North America, Europe, and Australia. Taking such circumstances into account and understanding the importance of involvement of these Bogos people who have opportunity to further their education and different life experiences from their new nationalities in diaspora, the researcher also used a questionnaire technique to consult with and invite input from many Bogos people in North America, Europe, and Australia.

The study also relied on secondary sources of data for more information. These were achieved through Internet, in-depth library research, and documents from various government reports and international publications.

1.6 Delimitations

In undertaking this research there were constraints that were mainly the result of the long destructive war of independence. Eritrea, being relatively a new nation that went through a 30-year war of independence and another catastrophic post independence border war with Ethiopia, has been the subject of very little research. Besides the lack of peace in the region that destroyed any hope of initiating development research, the war destroyed the infrastructures and institutions of the region. All these resulted in data and information shortage for any specific region. Most of the institutions have just been re-established post the independence; they have not accumulated enough historic database.

The constraints of time, lack of funds, and distance from the study area limited the scope and depth of primary data generated in this research. Nevertheless, the level and quality of information gathered complemented by secondary source of data were adequate for meeting the objectives of this study.

The study focussed mainly on natural resources management issues in Bogos. Political issues were not covered within the scope of this study.

1.7 Organization of The Study

This research document consists of four chapters. Chapter 1 provides background and context for the study, and outlines the objectives and methods used in this research. Chapter 2 presents a review of literature on the theoretical basis of sustainable livelihood on food security and community development. It includes literature review on community self-reliance, and food security policy framework in Eritrea. Chapter 3 discusses the different methods used in this study. Chapter 4 outlines the assessment of natural resources and socio-economic activities in Bogos – Eritrea. Further, it discusses the major stresses on the livelihood of the people of Bogos and the local adaptive strategies. Chapter 5 presents an action plan appropriate to the needs of the Bogos people. It recommends a community-based development approach, and a combined adaptive and integrated approach to ensure sustainable livelihoods, long-term food security, and community development in the Bogos region.

CHAPTER TWO

Literature Review of the Theoretical Basis of Sustainable Livelihood, Food Security and community development

2.1 Preamble

The objective of this chapter is to present the theoretical basis of sustainable livelihood, food security, and community based sustainable development through a literature review. In addition, this chapter outlines food security policy in Eritrea and assesses the current peace agreement in the region and how it affects the sustainability of the livelihood of Bogos people and their communities.

2.2 Defining Sustainable Livelihood

Chambers and Conway (1992) present a comprehensive definition of Sustainable Livelihood, as a livelihood that comprises of the capabilities, assets and activities required for a means of living. A sustainable livelihood can cope with and recover from stress and shocks, maintain and enhance its capabilities and assets and provide sustainable livelihood opportunities for the next generation. Sustainable livelihood in one community can contribute to net benefits of other livelihoods at the local and global levels in both the short and long term.

Similarly, Berkes and Gardner (1997) define sustainable livelihood as the ability of local people to generate and maintain their means of living for the present and future generations. As in the case of the Bogos People, this is especially important in environments that are fragile, marginal and vulnerable (Chambers and Conway 1992).

As in the case of sustainable development, all the above definitions of sustainable livelihood incorporate the notions of complexity, change, and uncertainty. Therefore, inherent in the definition of sustainable livelihood there is an emphasis on adaptive strategies at local or community levels.

In this study, the term sustainable livelihood is used, based on the above definitions, to mean all the efforts of the Bogos people to generate and maintain not only a means of survival but also, a means that enhance their living standard combined with their capabilities to adapt to ecological, as well as non-natural stresses, of life in maintaining their assets and passing these assets to the next generation. Sustainable livelihood in Bogos is a way of life that is moulded by several generations' experiences and ability to cope with different challenges, while maintaining and enhancing the living standard of the people.

2.3 Introduction to Sustainable Development for Sustainable Communities

The purpose of this section is to understand the concept of sustainable development at a community level. In order to analyze sustainable community development, it is important to define the meaning of the terms “community”, and “development”.

The term “community” has several different meanings. Sometimes its meaning is much like locality, settlement or municipality. It can also refer to a group of people sharing an interest or identity. However, the most comprehensive definition of the term “community” means a group of people living in the same place and to some extent having a sense of identity and shared interests. Community defined in this term has both a human/social and a physical/spatial aspect (Aberley 1989). In this document community is used to reflect the Blin people of Bogos in Eritrea as a community that share the same identity, history, and interest that compromises their social, natural environment, and spatial aspects.

Development , on the other hand, refers to realizing the potential of a given resource, or bringing it to a fuller or better state. Sustainable development involves humans, as well as economic and environmental

development, and can be measured in terms of the health of human of communities as well as that of the natural environment.

The most common definition of sustainable development is that of the United Nations' World Commission on Environment and development (the Bruntland Commission) 1987 report, *Our Common Future*:

“Sustainable Development is a process of changing the character of society. It involves fundamental changes in the way business is done, what is taught to our children, how we as individuals live and conduct our lives and how governments and societies’ public institutions address the essential problems affecting our lives. Sustainable Development can be described as paths of environmental, economic, social and political progress that meet the needs of the present without compromising the ability of future generations to meet their own needs.” (UNWCE – 1987)

Most sustainable communities focus on long-term integrated systems approaches by addressing economic, environmental, and social issues in achieving healthy communities and quality-of-life. The concept of sustainable development recognizes that economic, environmental, and social issues are interdependent and integrated. If any of the three are not healthy, then the community cannot achieve sustainability. Sustainable development for Bogos people is therefore about balancing social, economic, and environmental priorities. This approach promises to bring about a higher quality of life and better access to life's necessities for more individuals. However, as most policy makers tend to focus mainly on the economic or environmental aspects of sustainable

development and seem to pay little attention to the social issues of the people, this study has a different focus. It emphasizes the social issues of sustainable development in the developing world and postulates that they are equally or more important in developing sustainable livelihoods. This focus challenges sustainable development policy of developing countries to strongly consider social issues of the local communities in reaching a realistic and balanced sustainable development that can be appreciated and supported by local people.

In the case of Bogos, Blin people value socio-cultural aspects of their life as they define their identity and establish the cohesion of their communities. So, it is very important to understand development in the Blin people's perspective. Bogos communities value social and communal life more than any economic growth. It is very crucial for any sustainable development policies and programs to understand the importance of the socio-cultural aspects in Bogos people's livelihood enhancing and sustaining the communities' livelihoods in the long-term. Bogos people welcome development policies and programs that do not destroy their identity but rather embrace their unique socio-culture.

In short, the three aspects of sustainable development – social, economic, and environmental—are interconnected. To achieve sustainable communities, the different aspects should not be treated in

isolation of one another but addressed in an integrated approach as complementary to one another.

2.3.1 Economic Sustainable Development

Sustainable community development involves keeping economic growth within the limits of natural carrying capacity. That is development that does not: do irreversible harm to natural environment, protects natural systems, over-exploit renewable resources, and overuse non-renewable resources (Ekins 1990). The economic side of building a sustainable community involves the active pursuit of economic development, not as an end to itself, but as the means of providing the community with the resources needed to achieve social and environmental sustainability (Richardson 1993).

A sustainable economy means building a local economy that is both stable and diversified. In the case of the Bogos people, sustainable economic development programs based on the diversified livelihoods of the people, building on local strengths and resources, and encouraging local initiatives are the key to achieving long-term sustainable livelihoods and food security in the region.

2.3.2 Social Sustainable Development

The concept of social sustainable development is defined as “a community that is continually in the process of creating those physical and social environments and enhancing those community resources, which enable people to mutually support each other in fulfilling all the functions of life and attaining their full potential” (Roseland 1992).

Based on the above definition, a sustainable community should strive to achieve not only the economic and environmental aspects of sustainable development, but also the social aspects of life.

According to Roseland (1992), social sustainable development involves:

- ◆ satisfaction of basic human needs for food, shelter, education, work income, and safe living and working conditions;
- ◆ education and opportunities for development of human potential for the whole population;
- ◆ enhancement and maintenance of physical, mental and social well-being;
- ◆ equity, which involves a fair distribution of the benefits of development, and
- ◆ a democratic government that promotes citizen participation.

Sustainable development necessarily involves taking social equity into account: that is, not just how much development and of what kind, but how its benefits are distributed among the community (Berkes and Folke 1992).

In the case of the Bogos people, social and cultural issues are the bonding aspect among the different communities. It is very difficult to analyze the sustainability of the region or to have an effective and efficient strategy or policy without a comprehensive understanding about the values and meanings of the Bogos people's social and cultural issues. Any sustainable development policies and programs in the region should in composite the socio-cultural values and needs of Blin people.

2.3.3 Environmental Sustainable Development

In the 21st century, protection of the environment and promotion of economic development are no longer separate challenges. The World Bank in its annual World Development Report (1992) stated the protection of the environment is an essential part of development. Without adequate environmental protection, development is undermined.

Environmental degradation is often the cause and the result of poverty. The interaction between poverty and environmental degradation can lead to a self-perpetuating process in which, as a result of ignorance

or economic necessity, communities in the less developed nations may destroy the resources on which they may depend for survival. This can have severe consequences for Third World self-sufficiency and future development. It also imposes high costs through health-related expenses and reduced productivity of resources. In Bogos, selling fire wood and charcoal has gradually led to over-harvesting of the valuable forestry resources and became the main cause of desertification and soil erosion in the region that adversely affects their agro-pastoral subsistence farming.

As Label and Kane (1990) put it, “Development cannot subsist on a deteriorating environmental resource base and the environment cannot be protected when growth plans consistently fail to consider the costs of environmental destruction” (Label, and Kane 1990).

According to the World Bank, the poorest 20% of the world’s population is the group that will experience the consequences of environmental problems most acutely. Severe environmental degradation, due to population pressures on marginal land, has led to falling farm productivity and per capita food production; the rural communities suffer the most as they depend on subsistence farming. Similarly, the inaccessibility of sanitation and clean water mainly affects

the poor; it is believed to be responsible for 80% of disease in the developing countries.

“Rapidly growing Third World populations have led to land, water, and fuel wood shortages in rural areas and to urban health crises stemming from lack of sanitation and clean water” (UN Population Fund 1991). It is generally documented that increasing population density has contributed to severe and accelerating degradation of the very resources that these growing populations depend on for food production and survival. Yet to meet the expanded food needs of rapidly growing Third World populations, it is estimated that food production in developing countries will have to double by the year 2010 (UN Population Fund 1991).

Michael Todaro’s (1994) statistical review on the scope of environmental degradation in the developing countries:

- In the 1980s, per capita levels of arable land fell by 1.9% annually, leading to worsening land shortages, which have forced many of the poorest onto marginal land with extremely limited cultivability.
- Roughly 270,000 square kilometres of soil lose virtually all of their productivity each year.
- The resulting annual loss in agricultural productivity is estimated to be between 0.5% and 1.5% of annual worldwide GNP

- As a result of rapid population increases and the failure of agricultural production to keep pace, per capita food production declined in 69 countries during the 1980s.
- Unsanitary conditions created by the lack of clean water and sanitation contribute to typhoid, cholera, amoebic infection, bacillary dysentery, and diarrhea account for 80% of all diseases in developing countries and for 90% of the 13 million child deaths each year.

It is fundamentally important to see the community in ecological terms and recognize that the environment is not a collection of discrete items, but an ecosystem in which all these relate to each other and to people (Hancock 1993).

Sustainable development plans of a community should ensure that production processes do not overexploit the carrying and productive capacities of the natural resource base and compromise the quality of the environment, thus limiting the options of the poor, the present and the future generation (Singh and Titi 1996).

2.4 Community-Based Economic Development and Community Self-reliance

The notion of community-based economic development and community self-reliance are other major themes in the sustainable community and livelihood literature. However, while the purpose of this section is to discuss community-based economic development that leads to community self-reliance, it is also important to understand the different concepts that have direct relation in analyzing community self-reliance.

- **Poverty Line** refers to the level of minimum household consumption that is socially acceptable. It is usually calculated on the basis of an income of which roughly two-thirds would be spent on a “food basket” which provides the least-cost essential calories and proteins.
- **Absolute and Relative Poverty:** absolute poor are those who fall below the poverty line. Relative poverty, on the other hand, exists above the poverty line and is perceived as a state of deprivation relative to existing societal norms of income and access to social values.

- **Impoverishment** is an active process that leads to diminished access to options and entitlements of social, political, economic, cultural and environmental values.
- **Empowerment:** the concept of empowerment has been used to mean different things to different people. However, within the framework of development, empowerment has been used to imply:
 - Promotion of community development through self-help with an emphasis on the process rather on the completion of particular projects.
 - Good governance, legitimacy and creativity for a flourishing private sector.
 - A process enabling collective decision-making and collective action.
 - Transformation of economies to a self-reliant, endogenous, human centered development.

In short, as Singh and Titi (1995) summarized it, the above perspectives on empowerment strengthen the meaning and reality of the principles of *inclusiveness, transparency, and accountability*, held in common with the notions of democracy and sustainable development. Empowerment is closely tied to the concept of community self reliance, as empowerment points to the notion of building the capacity of

communities to respond to a changing environment by indicating appropriate change internally as well as externally and through innovation. In this sense, empowerment then becomes a tool for the reversal of impoverishment process rather than a theoretical construct (Singh and Titi 1995).

Morris (1982) states three factors that work together to encourage community self-reliance:

- the increased cost and decreased availability of raw materials, which leads people to favour more abundant and renewable materials, to recycle scrap products, process materials locally, and generate energy nearer the end user;
- new technologies, which allow more people to generate wealth from their homes; and
- the electronics revolution, which allows people to better monitor their environment and understand their relationship with it.

Governments and organizations can assist a community in moving towards sustainable self-reliance. However, the initiative and the continuing cooperative effort must come from within, reflecting the character, the determination, and the consensus of the community itself.

In order to have a sustainable self-reliant community, it is essential to develop a common vision, a shared picture of the kind of community its members want their children and grandchildren to live (Roseland 1992). However, while having a common vision is a fundamental first step towards sustainable community livelihood, it is also important to have well defined goals and specific objectives, as well as work programs laid out with well-established priorities for a community-based sustainable economic development plan.

As defined by Bryant and Preston (July 1987), local community economic development is a process, influencing the patterns of growth, decline and restructuring of economic activity to meet the community's needs and objectives. It is the involvement of the community that merits the label local, and it is the process of development planning that provides the link between the local and broader environment. Evidence from past experience, top-down planning approaches to community development have not succeeded to stress the local community as the one that must take the initiative to implement community-based economic development. Bryant and Preston further distinguished three initiatives that must happen in order to have a successful self-reliant sustainable community:

- ◆ community goals and objectives rather than externally perceived ones;
- ◆ the local mobilization of resources to attain these goals rather than a reliance on delivery of programs and resources from senior levels of government; and
- ◆ the development of strategies that are compatible with the community goals and objectives (Bryant and Preston 1987).

Local community-based economic development leads to community self-reliance as it places local efforts at the centre of community development. Building a sustainable self-reliant community is a long-term process. Its impact will not be dramatic or revolutionary, but gradually over many years it will grow.

2.5 The Concept of Sustainable Agriculture and Rural Development

Ending hunger and food insecurity is not simply a matter of growing more food. As hunger is so closely connected to other problems, eliminating it will require reducing and eventually eradicating many other underlying causes of human suffering. It will require action in increasing agricultural productivity and raising the incomes of rural communities, improving access to food by those most in need, ensuring

that developing countries' needs and contributions get a fair accounting in global trade, research, and investment. For the vast majority of people in developing countries, agriculture is the main source of employment and income. Taking the importance of agriculture into consideration, FAO adapted as a central part of its strategy against hunger to increase rural incomes and access to food by improving agriculture and the rural economy (FAO 2000).

The Rome Declaration on World Food Security and World Food Summit Plan of Action (November 1996) sets out a roadmap for achieving a world without hunger. The key areas of action under that plan include commitment to:

- poverty-reducing economic growth
- policies to enhance the employment and income-earning opportunities of the poor
- adequate attention to agriculture and rural development
- safety nets to protect the most vulnerable and marginalized.

Agenda 21, the action programme adopted by the UN's 1992 "Earth Summit", dedicated one of its 40 chapters to Sustainable Agriculture and Rural Development (SARD). It proposed a new vision "an agriculture sector that would not only ensure food security through increased output, but help rural people satisfy their socio-economic and

cultural aspirations, and protect and conserve the natural resource base to meet future needs”.ⁱ This new vision is very relevant for people of Bogos. It might sound strange but for most Blin people wealth is not everything. They value the social and cultural aspect of their lives more than personal wealth accumulation. Therefore, for Bogos people any policy or strategy that undermines their socio-cultural aspirations is not acceptable.

These SARD goals can be successful if the core people, the farmers and the villagers in general participate and play a big role in achieving the program’s goals. FAO have learned from previous experiences and have come to understand the importance of the participation of front line farmers. It has recognized that in order to achieve SARD goals, it requires action in three key areas: 1) build people’s capacity and strengthen institutions, 2) mobilize investment in the rural areas, and 3) develop technologies that enhance productivity, and conserve natural resources.

These dictate that in order for the Blin people to participate fully in their own development, it is very important to build their capacity by providing access to basic education, technical, environmental and economic knowledge, and to share with them appropriate information and experiences.

2.6 The Relationship Between Environmental Degradation and Food Security in Africa

In Africa, as in many other developing countries, poverty combined with rapid population growth, drought, natural disaster and war, is leading to widespread degradation of such renewable resources as forests, soils and water. Given that many people in Africa live in subsistence economies, environmental deterioration therefore directly reduces their living standards and their prospects for economic development. In this case, the issue of poverty and food security become a complex issue as poverty has an effect on environmental degradation at the same time environmental degradation makes food security more difficult. Poverty, thus, becomes a major cause and consequence of the environmental degradation and resource depletion, which include: deforestation, soil degradation and desertification, water scarcity, and deteriorating water and air quality. The challenge is to reduce poverty by having a sustainable development policy that is economically, socially, environmentally, and politically sustainable. This can be achieved by having a flexible adaptive sustainable development policy that deals with all the changes, uncertainty, and complexity of the whole issue.

As per United Nations Environment Program (1999), overview global environment outlook 2000,

- “ • Africa is the only continent on which poverty is expected to rise during the next century.
- An estimated 500 million hectares of land have been affected by soil degradation since about 1950, including as much as 65 per cent of agricultural land
- As a result of declining food security, the number of undernourished people in Africa nearly doubled from 100 million in the 1960s to nearly 200 million in 1995.
- Africa lost 39 million hectares of tropical forest during the 1980s and another 10 million hectares by 1995.
- Fourteen African countries are subject to water stress or water scarcity, and further 11 will join them by 2025.”

The above statistics show the complexity of the food security issue. At the same time it confirms that what is required is a flexible sustainable development policy that is able to accommodate all changes and uncertainty due to environmental degradation or due to natural disaster and war. Also, all the national and international policies towards food security and environment should involve the public. It is more

likely for a policy to be successfully implemented, if it has the support and involvement of an informed public.

Environmental governance at all levels requires a new partnership between governments and civic society that can foster the eradication of poverty and an equitable distribution of environmental costs and benefits.

2.7 Food Security Policies and Framework in Eritrea

Since its liberation in 1991 and independence in 1993 from Ethiopia, the Eritrean people have faced major struggles to form its own government and rebuild the war torn country. The challenge is more complex in that it requires short-term and long-term policies that can be affected by local issues as well as external issues and relationships. The challenges in achieving food security and being self-sufficient after the destructive impact of the 30-year independence war are difficult and complex. For example, some of the challenges include: repatriation of thousands of its refugee citizens from Sudan; limited water resources combined with sanitation problems; neglected subsistence farming; deforestation; soil erosion and poor soil fertility; complex land tenure system; collapsed rural infrastructure and marketing facilities; collapsed fish industry; mine problem; climate change and often draught.

However, despite the daunting challenges, the Eritreans made significant strides in improving the economy and the food security situation. “By 1997, the number of people requiring emergency relief assistance had dropped sharply, the main social services and administrative structures had been successfully established, vital infrastructure had been partly rebuilt, and the economy had started to show increasingly positive growth rates (8% by 1997)” (CFGB 2001). As the appendix 1, Eritrea’s annual cereal production, indicates the record harvests in 1998 had boosted the confidence and moral of the Eritreans, the Eritrean Government, thus, decided to continue on a course of self-determination that would give its people pride, morale, and would strengthen their known work ethics. This policy sought to maximize its own resources and minimize reliance on outside assistance. This strategy had been very successful in Eritrean history and during the 30-year independence war. This is reflected in the cultural pride, strong work ethics and strive towards self-independence by its people.

In January 1995, the Eritrean government published “Towards the Rational Use of Emergency Food Aid in Eritrea: Challenges and Opportunities”. It outlined its transition from relief to development by restricting the emergency food aid in favour of Food for Work (FFW) programs with emphasis on Cash for Work (CFW). “Donors were called

upon to be flexible in providing the food resources that the government could use in the manner it best saw fit; a mix of free distribution, FFW and CFW” (CFGB 2001).

In February 1996, the government issued two more policy documents “Utilization and Programming of Food Aid in Eritrea” and “The Establishment of Food Aid Monetization System in Eritrea”. With these two initiatives, the government stressed that it was “committed to getting rid of the food aid related programs” which were perceived as causing dependency and undermining the push for economic self-reliance. As a result, in late 1996, the Government of Eritrea announced that the services of NGOs were no longer needed in the country, as solid progress had been made towards meeting developmental and economic objectives. All food aid to Eritrea would be monetized and carried out under The Eritrean Grain Board (EGB) and The Eritrean Relief and Refugee Commission (ERREC). The monetized funds would be used to provide welfare to the most vulnerable groups and to finance programs to enhance food security.

Unfortunately, donors’ response to these policies was to severely limit food aid donation to Eritrea. The shift of policy, therefore, fundamentally changed the nature of the food security reserve being planned. Additional responsibility was placed on the EGB and ERREC to

deal with food security issues. That is, to assume a more active role in food importation and market purchase in light of the reduced donor food flows (CFGB 2001).

2.8 Assessment of The Current Situation Towards Lasting Peace in Eritrea

Unfortunately, since 1998 the combined effects of the Eritrean-Ethiopian border conflict and the protracted drought condition in the Horn of Africa region seriously disrupted any long-term goals on socio-economic development and food security.

In May 1998, the brewing tensions between Eritrea and Ethiopia turned into full-scale warfare. This led to the large-scale displacement of civilian populations and had dramatic and far-reaching consequences on the food security of Eritrea. As estimated by the government of Eritrea, “more than one-third of its population is affected by the war, the protracted drought, or by the combination of both factors and the majority being women and children”(University of Asmara, 2000). Also, since the war took place during the harvesting period, in the most fertile agricultural land where 70% of the national agricultural output is produced, displacement from these areas led to major disruptions of food production and resulted in shortages in the entire country. Furthermore, to make things worse, Ethiopia deported more than

350,000 of its population that have an Eritrean origin to Eritrea. The change in circumstances, therefore, has placed enormous strain on the Eritrean society and economy. This has forced the Eritrean Government and its partners to review their previous policies and change according to the uncertainty and complexity of the growing need for humanitarian assistance due to the war and drought.

Fortunately, on 12 December 2000 the Algiers Peace Agreement was signed to end the two-year border war with Ethiopia. As the result, a 25 kilometres wide Temporally Security Zone (TSZ) has been established along the border. And 4200 UN peacekeeping forces have been deployed to monitor the peace plan and to demarcate the border between Eritrea and Ethiopia. This formal ending of the war meant that the socio-economic situation in Eritrea could slowly start to improve as demobilization begins and the thousands of youth currently serving in the military return to the civilian workforce. However, due to the complexity of the issue and uncertainty of both the peace process and the next harvesting months' rain, "the Eritrean Government and the UN is planning to continue providing basic humanitarian relief assistance, and support initiatives aimed at facilitating the return and reintegration of displaced population. Support will also be given to recovery programs,

and the rehabilitation and reconstruction of damaged homes and infrastructure” (OCHA, 2001).

The policy framework of food aid and food security in Eritrea is a very complex issue. It involves all the “resource management realities”. Because it is so complex, it requires not only a short-term solution, but also requires for the government to analyze the issue in a macroeconomics level and have a policy that results in long-term solution. The Government of Eritrea has the ultimate responsibility for its own people. It is concerned about the well-being of its people’s well being in the short-run as well as in the long run. Consequently, the Government of Eritrea as in 1998 (pre-border war and draught), is always concerned about the effect of food aid in its people’s dignity, morale and strong work ethics. Its main goal is to make its people self-reliance by maximizing its own resources and minimizing reliance on the unsustainable short term outside assistances.

2.9 Conclusion

For the majority of the less developed countries, subsistence and small scale mixed family farms are dominant. Achieving subsistence is still the major objective of all developing nations. However, all face problems of poverty, low productivity, population growth, unemployment, primary product export dependence, high debt and international

vulnerability. In the less developed world the interaction between poverty and environmental degradation lead to a self-perpetuating process. Environmental degradation became the cause and the result of poverty. This has severe consequences for Third World self-sufficiency and future development, as it will impose high costs through health-related expenses and reduced productivity of resources. As U.N., Food and Agriculture Organization noted, to solve the problems of growth, poverty, and inequality in the third world, what is needed is not one or two isolated policies but for a package of complementary and supportive policies like the FAO policy towards Sustainable Agriculture and Rural Development policy that requires action in three key areas: a) Build people's capacity and strengthen institutions, b) Mobilize investment in the rural areas, and c) Develop technologies that enhance productivity, and conserve natural resources.

CHAPTER THREE

METHODS

3.0 PREAMBLE

This chapter identifies the various methods used in addressing the objective of this study. Given that the research approach is largely a constructivist approach, the research design involves mainly qualitative data analysis. In this section, after stating the conceptual framework of the study, the different methods utilized in obtaining the necessary data and information will be addressed.

3.1 Conceptual Framework

The primary approach of this study is a constructivist approach that is based on qualitative data research and a combination of different techniques of methodology. This approach is chosen mainly because the study is based on a qualitative data and the participation of the local people. The constructivist approach used in this study involves direct observation, gathering data through interviews and a questionnaire, and analyzing qualitative data in understanding and interpretation of how the social life and economy of Bogos region are maintained. The researcher

will also analyze some of the research projects that are currently underway in Eritrea. In that case, the positivist approach will be used in applying rational thinking, systematic observation, and careful analysis of data that have already been collected by different NGOs, local, regional, and national governments.

3.2 Field Trip To Bogos

Despite being born and raised in Bogos region, the researcher had a field trip to Bogos in July and August 2001 where he lived among the Bogos people and physically participated in many social and religious activities to reassess and evaluate the present situation of Bogos. It was an opportunity to have direct observation of a large cross-section of the study area. Water wells, schools, market places, and different plantations and institutions were visited. Local elders were consulted for their opinions and knowledge; interviews with key informants such as noted farmers, government employees, institution representatives, regional leaders, and different NGO staff were conducted. Also, digital videos and photographs of important projects, locations, and facts were taken, as well as reference material and data from different departments and sources were obtained. In general, the researcher has traveled to communities of Keren, Hagaz, Ashera, Glass, Megarih, Shignara,

Hashela, Halibmentel, Digi, Deroq, Elaberid, Wesbensirukh, Hager, Besigdira, and Ferhen.

In the evenings, informal discussions among small groups of local people living as neighbours were held. Also, took advantage of several opportunities to conduct discussions with some intellectuals and scholars who are originally from Bogos region that came from overseas to visit families.

While the field trip was very important and beneficial in having a direct observation and collecting a primary data, the cost was very high for this study that was not funded by any organization. However, taking into consideration the distance from the study area and the limited time frame, it was very advantageous that the researcher, being a native of Bogos, was already familiar with the region's different places and locations, as well as culture and climate; otherwise, the field trip would have been very time consuming and more costly.

3.3 Interviews

Since this study is based on a qualitative data, the attitudes and beliefs of the rural population of Bogos people is of vital importance in the study. Fortunately, besides the author being originally from Bogos, having immediate families and relatives who are well known among the Bogos people was a great benefit in a quick reconnection to the people and building trust. As a result, the attitude of the local people was very positive and friendly that resulted in openness and volunteering of information. Having the opportunity of the friendliness and openness of the people, the author consulted several long-term residents of the area to assess and evaluate the strength and weaknesses of their livelihood, to set some broad goals and objectives, and to generate ideas for an action plan. Also, the researcher has easily managed to conduct several interviews in a manner of unstructured open discussions in a random sample of sub locations within the Bogos region. During the several interviews with the local people, government staff, and NGO members, specific reference was made to natural resource planning, sustainable livelihood, and community development programmes.

3.4 Questionnaire

As many of the educated people of Bogos are understandably living outside the country, as they were forced to live their beloved country due to the destructive war with Ethiopia, it is vital for this research to understand the past historical facts and use a questionnaire to consult and reach as many Bogos people as possible. The questionnaire was mainly directed towards the Bogos people who currently live abroad. The author does believe that these people of Bogos who live in Diaspora could highly contribute to the well being and sustainability of the Bogos communities. Let us not forget that these Bogos people, despite living in abroad, they are part of the human resources of Bogos region. As part of their community members, the Bogos communities have directly contributed towards the success of every Blin person in abroad during their early years. Given that, besides the financial assistance towards their immediate families and relatives, Bogos people in diaspora, have a moral obligation to direct some of the experiences and knowledge that have gained from having different educational opportunities and by exposing to the different socio-economic aspects of the developed world towards the sustainable community development of their fellow Blin people in Eritrea. Having that in mind a questionnaire was sent to

several Blin people in diaspora. For detailed reference a copy of the questionnaire is attached at the end as Appendix 1.

The advantage of using a questionnaire in this study is, as a matter of fact, it is not only give an opportunity to reach as many Bogos people as possible, but also allows the study to consider the past historical facts and reach the Blin people who are no longer live in the region. However, the disadvantage of using a questionnaire is there is no personal contacts as a result all unspoken facial expressions and communication are missing. Also, due to the hectic way of living of the western world, the response of the Blin people who live abroad is understandably poor comparing to the local in person interview approaches. In most cases it needed a fellow up and some people despite their willingness to participate in this study, they just couldn't find time to respond in writing. In that case, some just gave me their opinions by telephone.

3.5 Literature Review

A literature review was conducted on the theory of sustainable livelihood and community development. This was done to give a complete understanding of the notion of sustainable livelihood, community development and other related concepts. It also stresses the importance of community involvement in the process of having and maintaining sustainable self-reliant community development. Literature materials regarding sustainable livelihood, community development, frameworks, and reports were reviewed. Reference materials were obtained from literature and Internet searches, reviews of related reports, and contacts with individuals possessing relevant expertise. Search for related information from any previous projects and NGO, UN, and World Bank facts and information regarding Eritrea and Bogos people was conducted. Also, the researcher continuously kept in touch with key contacts in Eritrea, and with some key Eritrean professionals abroad throughout the duration of the study.

3.6 Local Participation And Traditional Knowledge

Traditional Ecological Knowledge is defined as a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment (Berkes 1999).

In the past, it has been proven that without the participation of the local people and government, any research such as this has little chance of success. As the main beneficiaries of this research are the Bogos people and the Eritreans in general, it is very important to allow their participation and appreciate their traditional knowledge and co-operation.

Freeman (1992) analyzes the limitations of science, and the need of co-management and traditional ecological knowledge as follows:

a) Biophysical systems contain not only innumerable interacting components, or sub-systems, but also most basic parts such as micro-organismic component of biological activity of the ecosystem that are largely unknown to science and for the most part ignored in the analysis.

b) It must be remembered that ecosystems are subject to purely random variation from place to place, season to season, and year to year. Even though scientists can allow for variability, it cannot be predicted; it

is not a simple linear process of cause and effect. Thus, scientists rarely have comprehensive data sets that take note of a variety of co-varying environmental features over long periods of time. Scientists warn of the need to accumulate “base-line” data; data against which future changes can be compared.

The preceding paragraphs thus clearly demonstrate that there is a very strong need for co-management and traditional ecological knowledge to fill the gaps left by science. As a result, it is very important to encourage applying co-management and traditional ecological knowledge often in any researches and projects in Bogos and in Eritrea in general.

It is realized that TEK already possess the “base-line” data sets, often of sufficient length to cover several population “cycles” that western science lacks (Freeman, 1992). This means that traditional knowledge provide a complete data that generated from observations and experiences of generations. As a result this complete data enable us to analyze issues in a holistic manner and provide enough data for comparison.

Recent findings of modern science also prove most of the views held in many indigenous societies traditional Knowledge is true and valuable. It is clearly demonstrated, the knowledge of indigenous societies accumulated over historical time is significant and have value

for evolving sustainable relations with the natural resource base (Gadgil et al 1993).

Today, natural resource managers and governments acknowledge the significance of indigenous people's participation in natural resource management and are willing to apply a co-management approach in order to fill the gaps in ecosystem management in reserving the integrity of ecosystem. Also, as stated in the report of the World Commission on Environment and Development, indigenous communities are the repositories of vast accumulations of traditional knowledge and experience that link humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems (Berkes 1999). Since the significance of co-management and traditional knowledge is recognized and promoted internationally, therefore, it is highly recommended to encourage the Bogos people to participate in any research programs and respect and value their input from traditional knowledge in any community development programs.

Being a native of Eritrea, the researcher not only had a field trip to Bogos and had encouraged many people to participate in this research, but also, understanding of the past events in Bogos and the circumstances that forced most of the educated people out of their region, the researcher used a questionnaire in order to consult and invite the opinions of the people of Bogos in diaspora.

Table 1- Summary of Qualitative Research Methods

Methods	Activity
<i>Participant Observation</i>	From mid July to end of August, 2001 a field trip to Bogos region – Eritrea. Physically participated in the daily activities of the local people to reassess and evaluate the present situation of Bogos. Agro-pastoral activities, firewood and charcoal production, water wells, schools, market places, and different plantations and institutions were visited. National Expo2001 was visited with a special attention to the Bogos region’s presentation. The field trip was an opportunity to have direct observation of a large cross-section of the study area and have a personal connection to the study. Memorable digital videos and photographs of important projects, locations, and facts were taken. However, it was very expensive and time-consuming process.
<i>Informal Interviews</i>	The popularity of author’s father and other family members in the region, made it very easy to have an informal interviews with a diverse and cross-section of the local people. Once the people found out who the researcher is, automatically they felt at ease and removed the unforeseen protection shield around them and had an open and friendly conversation with the researcher with full trust and many invited him for tea, lunch or drinks. Informal interviews assist the researcher to hear directly from different local people from different socio-economic background and gender. The disadvantage was some times if not controlled the conversation could take very long. And definitely it was very difficult to interrupt or to cut the local people short as it considered to be rude and disrespectful to do so specially once they trust you and start to speak openly. As a result it required a lot of diplomacy and ability to know how to steer the conversation and when to end it.
<i>Semi-Structured Interviews</i>	This kind of technique was used mainly with some government and NGO organizations as well as with some local people with higher educational background and/or has some understanding of research techniques. A total of 21 semi-structured interviews were conducted using guide questions. The guide questions were developed after the initial informal interviews and participant observation shaped the research objectives and discussions with some local people.

<i>Key Informants</i>	<p>Given the time limit of the field trip, it was very important to plan ahead of time and find key informants in the region. The researcher using his connections in the region had a list of key informants ahead of time even before the field trip. Also, understanding the socio-cultural aspect of the people, it was very important to meet with some of the influential key people in the communities in order to get the full support of the people. Some of the key informants from the communities were local farmers with no formal education but they had excellent memories and pool of knowledge that accumulated through experiences, observations, and information gathered from local communities through generations. Other key informants include government officials and NGO staff.</p>
<i>Evening Group Discussions</i>	<p>Informal evening group discussions were held with different groups when ever possible. As part of the Bogos social life, it is a common tradition to find groups of people mainly friends, relatives, and/or neighbours gathered together and just relax and have friendly evening discussions. In many occasions these evening discussions involved the participation of some relatives or friends who came from abroad for holiday visits. By recognizing the values of such group discussions, the researcher endeavoured in engaging in such groups to discuss some of the issues and information regarding the sustainability of their livelihoods, community based development approaches, and food security of the region. The overall feedback from these discussion groups highly contributed in enhancing the broad goals and objectives of this study, and to generate ideas for an action plan.</p> <p>The disadvantage of such evening discussions is, being an informal gathering; they are unpredictable in their occurrences, location, and number of participants.</p>
<i>Questionnaire</i>	<p>This technique was directed toward the Bogos people who currently live abroad. The questionnaire was sent to several Bogos people in diaspora to consult with them as well as, to invite them to participate and provide their inputs toward this study. These people having been living in the western world, are exposed to different ways of living and have accumulated different knowledge that might be used in enhancing the sustainability of our fellow Bogos people in Eritrea.</p> <p>Unfortunately, as part the western living life is hectic, some of these people couldn't have enough time to respond to my questionnaire, and some others preferred to call me and discuss the questions by telephone.</p>

CHAPTER FOUR

ANALYZING THE NATURAL RESOURCES AND SOCIO-ECONOMIC ACTIVITIES OF BOGOS IN THE CONCEPT OF SUSTAINABLE LIVELIHOOD, FOOD SECURITY, AND COMMUNITY DEVELOPMENT

4.0 Preamble

This chapter discusses and analyzes the natural resources and socio-economic activities of Bogos region in Eritrea in relation to the concept of sustainable livelihood and community-based development. The first section of this chapter provides the Bogos people's profile by analyzing the ecosystem of the region and discussing the natural resource base that are vital in the sustainability of the livelihood of the people and in securing a long-term food security in the region. Part two of this chapter deals with the unique socio-economic activities of Bogos people that should be understood and be considered in developing and implementing any short-term or long-term community development policies. At the end of the chapter, the main factors of livelihood stresses and the local adoptability to such stresses will be discussed.

4.1 The Bogos People's Profile

4.1.1 Ecosystem



Figure 3 – Bogos Ecosystem

This section is divided into three sub sections. It begins by discussing the geographical location and topography of the region and is followed by a discussion of climate, ecology, and soil.

4.1.1.1 Geographical location and Topography

Bogos is a sub-region of local people within the Anseba Administrative region. Bogos is located in the centre of Eritrea; it is the land connecting the Highlands and the Lowlands of Eritrea. The Bogos land being mainly part of the Anseba province, it borders with provinces of Maekel in the south, Gash-Barka in the southwest, and with Semien-Keih Bahri in the northeast, with a total area of approximately 12000 square km.



The topography mainly consists of mountains and hills of high elevation as being part of the central ranges of mountains, and also

Figure 4 – Topography (Mt Senkil & Firdighi Begu)

since the western lowlands of the nation begins from Bogos region; the topography consists of vast plains. The altitudes range from about 400 meters above sea level in the lowlands to 2200 meters above sea level in the mountainous areas. As a result of the wide range in elevation, land cover varies in terms of type of vegetation and canopies.

4.1.1.2 Climate and Ecology

Due to the wide range in elevation, the climate and vegetation cover of Bogos varies accordingly. Average temperatures range from 12°C to 40°C with annual rainfall ranging from less than 200mm to 650mm per year. Most of this rain falls within the three-month period, June to September. In general, due to its topography of different ranges of mountains, the climate of Bogos is relatively very good. Known for its quality of air, medical doctors advice their patients to go to Keren (the largest city in Bogos) for change of climate and fresh air. As Edward

Paice (1996) states, “Keren has always been attractive to foreigners, starting with the Swiss adventurer Warner Munzinger who arrived here in 1855. It was also a favourite place for Italians because of the temperate climate and the fertile soil – many had market gardens in the surrounding area, such as the cultivation at Otala, were the former Da Nadai estates”. Also, as their favourite place the Italian build beautiful buildings that are still used for different purposes.

This picture was known as Basqusi hotel for the Italian settlers luxury hotel, now is known as Keren Hotel provides services to different guests in Keren city.



Figure 5 – Keren Hotel (previously known as Basqusi)

The climate in Bogos can be described in four seasons. Namely:

Shiqk (Winter) June – September this is the only season when the region gets its rainfall. Besides having rain, this season is characterized as hard work period for the farmers (preparing the land, ploughing,

weeding, and protecting the farm from animals), as well as “Hamli” time – different wild vegetables relied upon for survival. The rains bring different kinds of Hamli including the very widely used in most of Bogos and well-known “Hamli Shipeni”. It is a wild vegetable that naturally grows in the fields and farms in most parts of Bogos with the help of little rain. Most of the families that were barely surviving from the last remaining grains of last year’s harvest, are saved by this wild vegetations for their daily meals and by selling it to nearby towns, they earn extra money to get them through the tough time of Shiqk until they get their new harvest. Given that wild vegetation grows during the month of July, the local name of the month of July is Hamle named by the actual facts of the situation “Hamli Time”. Wild vegetation like Shipeni become one of the important vegetations in the livelihood of Bogos people as they depend on it for their daily meal and for extra cash during the difficult times of winter. It has become one of the mechanisms in coping with food insecurity.

Also, since the people of Bogos mainly depend on subsistence farming, any rainfall during this period has strong impact on the survival of the people and the underground water table. Thus, water conservation and protecting of wild vegetables are very important issues in maintaining a sustainable livelihood and food security in the region.

Tmuan (Fall) October – November is harvesting season. This is the continuation of the hard work of winter. During this time there are very strong winds and characterized by the fall colour of dry leaves and stems of the farms.

Meshu (Spring) December – Mid February is Celebration season. It is characterized by gratefulness and happiness. During this time the Bogos people give thanks to the Lord and pay back their debts to their fellow Bogos people who assisted them during the difficult times of winter.

During this season the harvesting is already completed and the livestock become healthier and produce more milk, so that most of the Bogos people have enough food at this time. As a result, understandably, most of the Bogos people's socio-cultural activities are held or practiced during this period of time. The detailed socio-cultural activities will be discussed in the next section. However, to give an example and stress the happiness of this season it is worth mentioning that during this period of time most weddings take place and the youth of Bogos travel on foot many kilometres every evening to wherever a wedding evening play (Gwaila) is taking place.

Hagai (Summer) Mid February – Mid June a very dry season. It is characterized by its sunny hot weather. During this period of time most of the weddings are done and reality starts to kick in. As one of the mechanisms towards the livelihood stresses, people start to budget their harvest, in an attempt to have it last them until the next harvest.

4.1.1.3 Soil

As the livelihood of Bogos people is mainly based on traditional subsistence farming (agro-pastoral activities), the issues of soil quality and soil erosion are some of the main factors in achieving sustainable livelihood and food security in the region. In this section both soil quality and soil erosion issues are addressed in relation to sustainable livelihood and food security.

Given that the topography of Bogos region consists of different ranges of mountains as well as some vast plains, the characteristics of soils differ accordingly. In general, as Yohannes, Iyasu from Minister of Agriculture (1999) describe them, most soils are characterized as yellowish brown, brownish yellow brown, or brown to dark brown in colour and light-textured consisting of sandy loam, loamy sand, and loam. The main pH value of the soils ranges from 6.79 to 7.61, which is nearly neutral to moderately alkaline. The organic matter and potassium availability are low.

In the past, the land of Bogos was fertile with temperate temperatures that attracted many Italians to have plantations and gardens such as Otola Gardens, De Nadai plantation in Elabered. However, the thirty-year independence war against Ethiopia not only has destroyed most of the plantations and gardens of Bogos but also led to poor soil fertility and soil erosion.

Some of the factors that contributed to poor soil fertility and soil erosion in Bogos are: Lack of peace; Draught; Deforestation and Desertification; and the Groundnut Era of the 1960s.

Lack of peace during the thirty year independence war against Ethiopia led to loss in manpower (labour force) in the rural area. Most of the able farmers were forced to join the armed struggle of independence and also as families in the rural area became repeated victims of the inhumane acts of the Ethiopian military; fear, and hopelessness became part of their daily life and many were forced to become refugees internally and internationally. As a result, they were not able to take care of their land and erosion became a wide spread issue as it led to loss of soil and soil nutrients.

When the region became the target of the frequent draughts, the local farmers' mechanisms in fighting soil fertility declined dramatically. In normal years, part of the adaptive strategies of farmers in Bogos was

to alternate farmlands. Farmers with large or many family lands, farm on only some of their land and leave the remaining land to regenerate its nutrients. This was one of the local farmers' mechanisms in regenerating soil nutrients. However, when farmers faced draught consistently, they tend to farm their entire farm in the hope that if they were able to harvest enough this year, they will be able to leave some land for regeneration of nutrients next year. Besides that, drought forces farmers to sell their cattle in order to survive the harsh draughts. In the process they lose not only their cattle but also their ability to fertilize their land with the manure of their cattle. As a result drought leaves a big dent in the livelihoods of Bogos people and in attaining food security.

Groundnuts era – During the cash crops green revolution of United Nations in the late sixties and early seventies, groundnut farming became very popular in Bogos. Some of the farmers who did farm groundnuts at that time had an overwhelming harvest that enabled them to build beautiful houses in the city. They also manage to have an alternative additional livelihood as owners of shops and trade in the city of Keren and surrounding towns of the region. However, the groundnuts era combined with the draughts destroyed the livelihood of many other farmers as the groundnuts took away most of the land's nutrients. As most farmers remember, it was a time of hope followed by devastation.

The farmers argue that groundnut farming is not for every farmer. If one is not prepared to leave the land unfarmed for at least two to three years following groundnuts harvest, then it is better not to grow groundnuts completely. However, since subsistence farming is the only livelihood for most farmers, they cannot afford to leave their land unfarmed for two or three year. And when they keep farming hoping they will have a good harvest, no matter what crop is planted following the groundnuts, it will not yield as in normal years; the productivity of the land reduced dramatically for good. Thus, groundnuts took away any future hope of many farmers and their families.

Deforestation and desertification is also another major cause in soil erosion and loss in soil fertility. Besides subsistence farming, charcoal production and selling firewood for cash in the towns are part of the livelihood for many Bogos people. As draughts persist, the rural people became more and more dependent on selling firewood and charcoal for extra cash to substitute their farm loss of crops. This unfortunately led to deforestation and desertification in return accelerated the soil erosion and poor soil fertility problems.

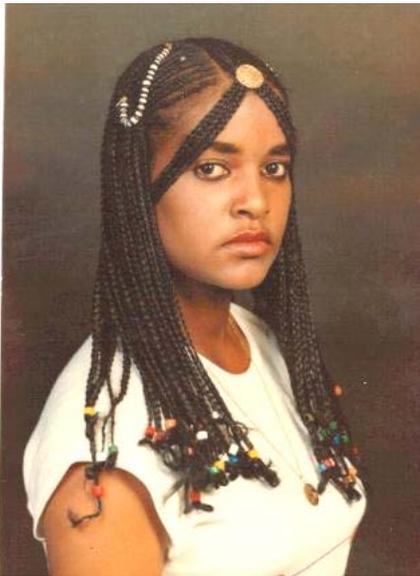
In general, since soil health is fundamental in sustainability of subsistence farming which is the main livelihood of Bogos people, soil conditions became one of the main factors in food security for the region.

4.1.2 Socio-Economic Aspects of Bogos Communities

4.1.2.1 Background History

As the world ethnologue states, Bogos (Blin) is a past of-al race of mixed Hamitic descent, occupying the highlands immediately north of Abyssinia part of Italian colony of Eritrea. As traditionally well-told oral history of Blin indicates, Blin people originally migrated from Agew Lasta region from central part of Ethiopia. This statement is widely shared by many elders of Blin people. The similarities of the languages of the two tribes and the names of animals and places, give strong support to the orally told background history of Blin. It is also, very clear from the present day Blin tribe that the migration of two brothers named “Taweqe” and “Tarqe” from Agew Lasta originated the two clan families in Blin known as “Bet Tarqe and Bet Tewqe” in Blin communities. Where in Amharic Ethiopia’s national language “Tareqe” means “Reconciled” while “Taweqe” means “known”. However, as in the history of many Tribes and Clans around the world, there is no community that live on isolation. There is always interchange of culture, and intermarriages among different tribes. Not exception to that rule, in Blin communities there are also some intermarriages and expansion of clan families that assists in expanding the number of the tribe. For generations, the different sub-tribes of Blin namely: Beit Tawqe, Beit Tarqe, and Aserte-Kilte Neged

were living together in a harmony. They share the same religions, culture, and language. And since the socio-cultural web of their livelihood is strongly intertwined, they have developed a strong sense of unity and brotherhood. They have intermarriages not only among the three sub-tribes but also they even intermarriage with other different tribes of Eriritea. As a result, nowadays, it is very difficult to find a family that do not have a blood line that is not a combination of the three sub-tribes. This strong unity and brotherhood of Bogos people plays a crucial and vital role in sustaining their livelihood and achieving strong community-based sustainable development that secures long-term food security in the region.



The People

As this picture shows, Bilin women are well known for their hair do. It is unique hair style that use gold and beads as part of the hair do. During the wedding time the immediate family and friends of the groom and bride braid their hair and dance special dance called “Shelil” using their

Figure 6 – Bilin Lady & traditional beautifully braided hair swinging it from
Hair do side to one another.

Other unique characteristic of Blin women is that they wear special noise jewellery called “Telal”. They cover their head with a very colourful head cover called “Aderie” and then on top of the Aderie they cover with another white head cover made of cotton.

On the other hand, Blin men dress up using a white material made of cotton to make the unique pants called



Figure 7 Blin Man

“A’raghi” and any shirt or pullover on top with a

rolled five to ten meters long white cotton material coming from the back to front and rolled back over the shoulders. It is also part of the tradition for men to carry a specially made stick that show their manhood and pride. As a shoe wear, normally the men wear home made shoe out of animal hide.

4.1.2.2 Settlement and Housing

Historically, the people of Bogos live in small communities. They settle in many small to large villages with a total population of approximately 84000 people. Keren being the region’s main city, as a typical characteristic of any third world city, its habitants consist of Blin from different communities as well as other tribes from the surrounding area.

As this photograph illustrates, houses of Bogos villages mostly made of stone, mud, wood and straw, which is very adaptive to the ecosystem of the region.



Figure 8 Housing in Bogos

In the city and towns there are modern houses made of stone, cement and corrugated tin as a covering sheet on top of the roof. Also as in the case of many third world communities, amazingly, there are beautiful churches and mosques as worship places both in the towns and in many villages that were built by missionaries. As traces of colonialism, in Keren city there still exist some of the beautiful big colonial buildings, which are used as government offices and market place.

Blin Communities in Bogos region consist of many large and small communities. Some of the main communities are:

Table 2 – Bogos Communities

Ashakrukhh	Dobaath	Hagaz	Megarh
Ashera	Eden	Hager	Melebso
Ad Hashel	Eilosh	Halhal	Musha (Shebah & Aiq)
Ajerbeeb	Eleberead	Halibmentel	Ouna
Bambi	Fafda	Hangol	Qunieie
Begu	Feredareb	Hashela	Qusht
Besig-Dira	Ferhen	Igungulet	Sanqa
Debesa	Fila,	Inchinaqk	Serwa
Debresina	Geleb	Jengeren	Shariki
Dengurejba	Ghebena Genfe'lun	Juffa,	Shinara
Dermush	Ghebru Qrut Iroora	Koken	Torenqua
Deroq	Ghlas	Korbi Beld	Tselale
Digi	Hadish Adi	Lebeda	Warekhi
			WesbenSirukh

Note :

1 - The intention of naming the communities is not to develop a complete list of the communities; however, to give an overall idea that Bogos region consists of several communities.

2 - Some of the above communities are consist of several settelements or smaller communities to make a larger community. Example:

Ashera (Combination of nine settelements namaly: Sequar, Shaftakh, Meblatukh, Kqorot-nejar, Ghelairakqot, Sabrubeju, C`ndokqay, Andelai, and Qkit)

Begu (Combination of twelve settelements namely:Ghirdiukh, Eshidra, Ghubene, Inckimetry, Asha'lakh, Gheab, Guoga, Bosa, Shelembi, Biledba, and Frdighi)

Iblawukh (Consist of Ghlas, Faraleba, Ugungulet, Ashakrukhh . . .

Sekhoneiti (Consist of Wesbensirukh, Besigdira, Ferhen, Ajerbeeb, Musha

As Blin communities' livelihood is based on agro-pastoral activities, in order to fertilize their agricultural land with organic fertilizer (animal waste), it is a common practice for every household to move into their farmland with their livestock for the summer. This movement is done immediately after they have harvested their crops in the fall season by making temporary summerhouses out of the harvested sorghum and millet hay. Most of the time, this movement from the permanent winter huts (Tkul) to the temporary summer straw houses is done easily as most of the family farms are within the vicinity of the communities, and they don't have to move everything.

However, during the very dry months (March to June), the youth of the community take the livestock and move a long distance to the Gash region and build temporary shelter out of wood around the Setit river in search of forage and water to keep their livestock alive until the next rainy season in Bogos.

4.1.2.3 Subsistence Agriculture



Figure 9 - Farm land in Bogos respect trees and can co-exist with the forestry program.

In spite of the obvious differences between agricultural systems, rural structure and institutions in Asia, Latin America and Africa, there are certainly some broad similarities. As in many developing communities, in Bogos, subsistence farming is characterized as being the lifeline of many households. The main concern of a Bogos farmer is survival of his family. Subsistence defines the concept of life.

The geographical location of Bogos being at the centre where the lowland pastorals and the highland settled subsistence farmers meet, gave advantage for Bogos communities to become agro-pastoral communities. Most Bogos farmers strive to obtain their family needs by tilling a piece of land that is more often inherited family land handed down for generations and at the same time raise some livestock. By doing so they get some flexibility in their livelihoods and security for their families. However, some less fortunate Bogos farmers try to survive by renting a piece of land or striking a deal with other landowners in the

community that they will provide the oxen to till the land and the other landowner will provide the land and at the end both will share the harvest equally. Those poor households that cannot even afford to have oxen are forced to try to have a deal by selling their labour to work on a farmland and get one third of the harvest in return. However, in many cases, since the community live in harmony and in co-operation by assisting one another, it is also common to see a distant relative who has extra family land allowing any one of the poor members to farm the land for free. In other situations, especially during the drought years when most of the farmers are forced to sell their livestock for survival, or their livestock die due to lack of water and forage, the communities amazingly co-operate with one another in farming the land. Those who are left with some oxen will rent their oxen for extra cash or extra harvest or even in many cases let other members of the community borrow the oxen for free to till their lands.

Productivity of both labour and land is very low. Farming techniques are based on the level of disposable capital. The communities utilize human and animal power rather than mechanized equipment, animal manure rather than chemical fertilizers, traditional crops and seeds rather than experimental cultivations. In addition to the above, drought and war have made things more difficult for most Bogos farmers.

As a result, as in the case for many peasant farmers in developing countries, it is more likely for the Bogos farmers to have debt rather than profit at the end of their farming season. Profits are not preconceived goals; they might come to them as windfalls through the fortunes of weather or market (Todaro 1994).



As this photo indicates, similar to other developing countries in Asia, Africa, and Latin America, subsistence farming on small plots of

Figure 10 - Small plot subsistence farming in Bogos

land is the way of life for the majority of Bogos people. Therefore, it is very crucial to understand subsistence family farming as the main livelihood for the majority of Bogos people and have policies that respect and sustain such family farming. Eritrea being relatively a new nation which is in the process of reviving its infrastructures and economy, needs to learn from the past experiences of other countries and stay away from policies that favour big plantations at the expense of the subsistence family farming. No matter how successful a plantation is it won't be able to hire every farmer in the country. Also subsistence family

farming being the back bone of a community or even the nation, it is very important to respect it as a main source and factor for many communities' livelihoods and their dignity and pride. Favouring a policy that mainly opt for selected fertile lands rather than universal subsistence family farming in all communities, damages not only the productivity and market competitiveness of the small family farms, but also destroys the dignity and pride of most communities whose livelihood, and socio-cultural activities depend on subsistence family farming. Favouring big plantations on the expense of small family farming, will also damage the reputation of agricultural sector more as the people start to perceive family farming as a low profile job and they lose confidence on farming.

4.1.2.4 Religion



This picture of the famous and well celebrated miraculous Mariam De Arit of Keren is a unity and brotherhood symbol among all Christians and Moslems. It is one of the tourist attractions in Bogos. People come from all over the

Figure 11 - The famous & miraculous Mariam De Arit of Keren

world to celebrate on May 21 of each year and to see the miraculous holy Mary inside an *Adansonia Digitata* (Duma) tree.

The people of Bogos are a tolerant society. They live in harmony with different neighbouring tribes. They are very religious people. Most of them belong to the Roman Catholic Church while some are Moslems. However, unlike many other societies, Bogos people believe religion is an individual belief in God so they put their religious differences aside and formed a very strong brotherhood relation and strong sense of unity among the Moslems and Catholics. Thus, beside being co-operative and joyful for the religious celebration of fellow Bogos people, they also stand up for one another during difficult times or when the rights or privileges of the other religious believers are at risk. These practically were proven when the shrine of St. Michael Church of Keren was about to be taken away from Keren, both Catholics and Moslems stood up side by side and prevented the act. When the Moslems were told these do not concern them, and that it was Catholic Church issue, they responded, “ St. Michael belongs to Bogos people and not only to the Catholics. If it belongs to our brothers and sisters, then it belongs to us”. The same thing happened when Seidi Bekri of Keren (A Holy Religious leader of the Moslems of Bogos) died and was about to be taken away to be buried in Sudan, both the Catholics and the Moslems stood up together and

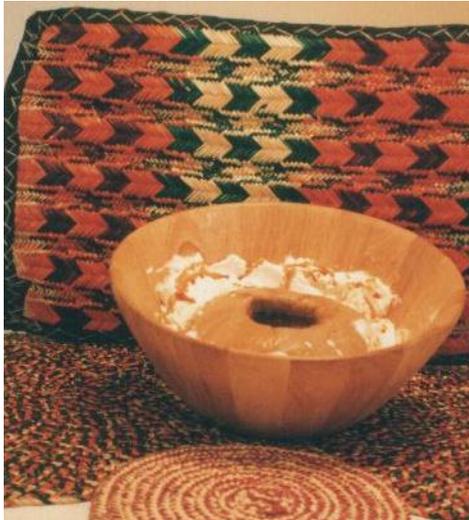
prevented it. The Catholics felt that the holy religious leader of Bogos does not only belong to their Moslem brothers and sisters, but also to the whole Bogos people, as the social and religious life of Bogos are intertwined. When there is annual religious celebration such as St. Michael yearly festival, Mariam De Arit Festival, or holidays such as Maria, Ed el Fetur, and Ed el Adha, St. John (Five days at the end of the year), Meskel (The Holy Cross), and the famous Georghis Hambelay of Bogos, they celebrate it together with whole day dancing, or a week long evening dancing and enjoying special meals together. For Bogos people thus, it is very hard to understand the intolerance of the world. Blin people by understanding the values of their socio-cultural aspects of life and the strong brotherhood of their communities, the Catholics and the Moslems not only accept one another, but also, they support the religion of each other. A good symbol of their unity and support to one another is indicated by the unique and special committee of the very famous St. Georghis Hambelai of Bogos, that consists of both Catholics and Moslems. Other support of one another's religion is expressed during the wedding agreement between the bride's family and the groom's family, it is part of the custom to bless the bride and the groom by the families and give some offerings. At this occasion, regardless the religion of the families, offerings are given to both the church and the Mosque. This

kind of unique relationship makes the Bogos people very united and strong community.

Therefore, it is very important for any research in the region to keep this reality in mind and not use religion as a factor of difference or assume the difference between Christians and Moslems are the same in all over the developing countries or the world in general. In Bogos the community life and social life is valued very strongly despite the difference in religion believes.

One very special and unique holiday for Blin people that has high impact on the socio-cultural and economic aspects of the people's livelihood, which should be respected by other project directors and managers is the holiday called "Maria" or sometimes referred as "The Candle Meal" or "Porridge Meal of Mary". This special holiday is celebrated by both the Moslems and the Catholics of Bogos for two day on the 22nd and 23rd of August every year. Locally Blin people differentiate them as "Mariamr Girga" for the actual first day, and "Mariamr Jebaba" for the next day. Maria is a holiday dedicated in the glory of our Holly Mary to praise and thanks her as well as to request her blessing. During this holly day, family values and sense of community is renewed and emphasized by forgiving one another for any family quarrelling. To emphasize family unity and values, after the church

ceremony, every family gather at the house of the oldest member of the family and enjoy a special meal of porridge (Kalla) that is prepared from



ingredients that are well selected and preserved especially for the respect of Holly Mary for this day. However, just before eating the meal, to give the holiday special significance, the ceremony starts by the eldest male member of the family by lighting candles (most of the time locally made

Figure 12 Special meal “Kala”

of string and wax called “Twaff”) and passes them around to all the family members to hold or just touch it including babies. Once all the members have received the candles, together they say a special prayer that led by the eldest member of the family and begin eating. This process repeats the whole day by going from one household of the family to another beginning from the eldest to the youngest. It is very rude and disrespecting not to attend such family occasion. Keeping that in mind, even though you don’t have to eat a lot, it is a custom to respect the family and go from one household to another and just wish them happiness and glory and test some of their kalla meal.

Most important to note about this special and unique holiday is the whole community voluntarily and strictly refrain from performing any work or any major undertakings in respect of our Holly Mary. As a result, despite been the busiest season of the year, all farming activities and any long distance travelling even to other markets is strictly prohibited by the communities. Any community members, who knowingly violate such tradition, found themselves isolated from the community and receive no co-operation from the community, as they are perceived as greedy and disrespectful people. Also, whenever there is any misfortune, the community link such misfortunes to the disrespect of Holly Mary by those greedy members who did not refrain from their daily work. Therefore, by understanding the importance of such holiday, despite not been a national holiday, it is very crucial for the success of any project to respect the values and beliefs of such important holiday of Blin people and accommodate them by providing two days off as holiday. This will bring loyalty and respect from the community towards the organization and its management, which is a critical ingredient of a success.

4.1.2.5 Marriage and Tradition

The kinship system in Blin Communities is similar to the kinship found elsewhere in Eritrea as all follow a strictly patrilineal system. Kinship among the Bogos communities is a very important instrument for securing access to and use of resources. Thus, generally, new couples expect their new communally constructed hut (Tkul) to be located in the groom's village and around his family. Until the new land ownership legislation put recently into practice, traditionally, Blin communities allocated land resource based on heredity, using the male lineage.

As Christmas time is a busy time for westerners, the month of January is very busy for Blin communities as it is the month when most of the marriages. During this period of time, the members of the communities work together in preparing for weddings, as all the food and drink for the weddings is made from scratch and require long preparation and lots of labour. To facilitate community spirit and to express their joy, there are evening dancing and playing (Gualia) for two weeks prior to the wedding day in both the groom's and the bride's parental homes. As a result, it is common for people to take holidays from work and high school students to suffer from lack of enough sleep during this month. Therefore, it is very important to put such valuable tradition in consideration when planning for projects or researches.

When it comes to Gualia, it is futile to try to prohibit a Blin youth from participating in a Gualia. In many cases, it doesn't matter whether it is a term exam or final exam many of the youth's work would suffer if it conflicts with guaila. They would be definitely absent in order to participate in any Gualia. There is nothing more important in Blin's youth than Gualia. It is considered one of the most important things in their social life. The youth male and female use Gualia as a main place to meet one another or as an opportunity to meet and chat with the person you love or even just for fooling around with friends. Beside that, the traveling of several kilometres by group of Blin friends singing together on the way to attend the evening Gualia gives them special personal prides and strengthens their community life.

Other very important social aspects of Blin communities one should be aware of in planning a development project or research include:

- Blin people are very proud of their unique culture and language.

Therefore it is not right to assume everyone in Eritrea speaks and completely understand the official languages. It is true that most are bilingual in Blin and one or more of the following Tigrigna, Tigre, and/or Arabic. However, that does not mean all Blin understand and speak Tigrigna. Thus, it is very important to respect the unique culture and language of Blin and incorporate them accordingly.

- It is a very important tradition for men to carry a special stick wherever they go. Thus, prohibiting students in a village or any adult Blin person from carrying their stick means humiliation and destroying their pride and honour.

- It is very disrespecting for Blin women to be forced to utter the name of their husbands, or in-laws in private or in public. Also it is very humiliating for Blin women to be asked to show their faces while their husbands or their in-laws are around. It is part of the unique socio-cultural aspects of Blin tradition that has to be respected. Any changes to socio-cultural issues should come from within and should be looked as part of the evolution of whole community's socio-cultural development. Some times it is very important to know that things that do not make any sense to one person does not mean the culture or practice is wrong; rather it makes the person wiser to accept it as it is.

4.1.2.6 Women's Role in Blin Community's

Socio-Economic Livelihood



Figure 13 Role of Blin woman

In Blin communities, women are not only the natural life givers, but also they are “the life” of the socio-economic aspect of a community. They are not just secondary contributors in the

socio-economic of Blin communities, but discreetly act as the main engine of a community's life.

Yes it is true that women may not able to perform all the tasks within a community that require physical strength; however, in every Blin household there is a Blin woman in the interior part of the “tukul” (hut) who articulately evaluates and analyses a situation, foresees ahead of time what is happening in the community and develops a long-term plan for the unseen future. They completely understand the family's assets and financial situations; so they exactly know when and what to sell for extra cash or when and what to buy to maintain their food security.

Thus, Blin women play a vital role in the communities' socio-economic

life. They humbly and discreetly become the mastermind of every success of Blin communities. Generally, Blin women understand their husbands very well and know how and when to respectfully engage their husbands in discussion or conversation to understand what is going on in the community or to provide some advice and encouragement. It is a heart-warming feeling to see how a husband and wife respectfully discuss matters. As a result, Blin women are highly respected in the society. Unlike many other tribes in the third world, Blin communities absolutely do not tolerate any wife beating or even disrespect of woman in the society in any manner.

Bogos women, besides being the mastermind of any community's success, also physically contribute to the livelihood of the community in several different ways. Outside the house, many young Blin women are engaged in fetching water from distant places; gathering fire wood for domestic use and for marketing in order to obtain some cash for other subsistence needs; and during the busy season of farming, they assist in the farm in weeding, and protecting the farm crops from birds and in looking after farm animals. Most of all, Blin women are known for their unique handcraft, using Dom Palm (Arkobkobay) leaves in making different products that play a significant role in the Blin communities'

livelihood. For generations, Dom Palm has extreme social and economic value in Blin

communities and

has become part of

their identity.

Mothers especially,

value Dom Palm

leaves dearly as they



Figure 14 Blin women's handicrafts

use it to make well decorated unique woven mats to be handed to the groom family side during the wedding of their daughters. They also weave mats to be used as mattresses on a bed and on floors for sitting down and sleeping purpose. Colourful woven mats by mothers are also used to decorate and divide the one unit family hut into two compartments (the Interior and the Exterior). Blin women also wove Dom Palm leaves to make specially decorated unique woven mats, carrying baskets, huge grain storage baskets, hats, and sweeping brooms that can be marketed in the local market and become a good source of cash for many Blin households.

In the socio-cultural context, Blin people are a patrilineal society. It is considered very disrespectful and humiliating for Blin women to be forced to utter the name of their husbands, or in-laws in private or in public. Also it is considered very humiliating for Blin women to be asked to show their faces or open their head veil while their husbands or their in-laws are around. It is part of the unique socio-cultural aspects of Blin tradition that has to be respected.

Given that, it is very important for any project or research in the area to understand the different social and cultural values of women in the communities and consider such issues during the policy development process and respect the cultural values of the communities.

4.1.2.7 The Impact of Trade in Bogos People's Socio-economic Livelihood

Trade is one other important activity in Bogos people's livelihood. Once the short raining season is over, all agricultural activity stops and the people look for other alternative activity in sustaining their household food security. And since the rural development program in Eritrea did not produce any employment opportunity for the rural people yet, Bogos people who couldn't find any employment in the cities, opt for trade as the only alternative activity during the long dry season of summer. Besides their livestock and farm crops, many Blin use fire wood or

charcoal as the only cost free forest resource as their main product for marketing in the local market. However, nowadays with the national strict forest protection program many Bogos people are shifting towards gardening and trading of garden produce in the local markets of the villages and in the main cities. On the other hand, women trade their well-known hand woven Dom Palm leave products such as mats, huts, hand baskets, charcoal stove fans, and brooms, as well as, eggs and chickens in sustaining their household food security during the long dry season. As the previous photographs illustrate, Blin communities' trade is mainly based on the availability of donkeys and camels for transporting their products to the markets. Therefore, the households that own donkey or specially camels have more advantage in having a more sustainable livelihood and food security as they may personally engage in trade using their animals or they may rent their animals to those who trade.

In the past several decades, as drought became a persistent problem in the region, many Blin youths are forced to leave their farm and engaged in long distance cross border trade, specially with Sudan. Gradually, nowadays, there are some Blin people who have become international traders with the immediate neighbouring countries. However, the lacks of training and experience, stability, as well as the

high cost of travel have forced many of them to be out of business. Since the community shows high interest in trade as part of their alternative livelihood, it would be very well appreciated if they get some assistance in business training and some sources for investment such as initial capital loan to get head a start in local and international trade.

Tailoring is another off farm activity that is practiced by some Blin people as their livelihood. As illustrated in this photograph, tailoring is



not only a woman's job. In Keren most men have custom tailoring shops and are known for their unique designs.

Figure 15 - Custom Tailoring is an alternative livelihood in Bogos

In order to sustain these different off farm activities most of the people in the community require some assistance in business training and some investment as initial capital loan to get a head start. Thus, since Eritrea is a relatively new country, international investment assistance from different organizations such UN, IMF, and World Bank as well as other NGO such as Okenden Venture, Oxfam, CIDA, Euro-Action Accord, Danida and others are required.

4.1.3 NATURAL RESOURCES BASE

This section discusses the natural resources of Bogos in the context of sustainable livelihood, food security, and community based development. It is not the objective of this section to account for all the natural resources of Bogos.

4.1.3.1 Water Resource

4.1.3.1 a - Preamble

Water scarcity and low underground water table are the main and critical issues in the sustainability of Bogos people's livelihoods and in their becoming self-reliant in food security. The result of the interviews and questionnaire indicate, that most Bogos people agree that the issue of water problem in Bogos region is one of the urgent and key issues in determining the survival and sustainability of their livelihoods as well as in becoming self-reliant and achieving food security. Mr. Teclé Tesfay, the Mayor of Keren, the main city of Bogos, emphasized that since people of Bogos can't live without water, shortage of water supply is prioritized as an "urgent matter". It has been estimated by the local administration of Zoba Anseba, which Bogos region is part of the administration, that only 15% of the total population in Anseba have access to sufficient and safe

water; more than 42 villages are in urgent need of an increased water supply.

4.1.3.1 b - Water Source

The source of water generally is similar from village to village. During the short raining season most of the villages may able to obtain water from hand dug wells and ponds from riverbeds. However, for most of the year during the dry season, the main source of clean water for the majority of Bogos households for the purpose of drinking for humans and livestock, as well as for cooking, hygiene and sanitation purpose is from deep dug wells, locally known as “Ella. Tap water is very rare for most Bogos people as it can only be found in the main city of Keren and some few towns. Even in these towns, especially during the months of December to June, tap water is not distributed to most houses and a majority of the residents buy water that are delivered by trucks or donkeys. In many cases traveling five to fifteen kilometres in order to collect water became one of the main parts of Bogos people’s livelihood. As a result, the water scarcity problem is seen as a community problem, and they must to work together as community in order to deal with the difficult tasks in getting water for survival. As part of an adaptation mechanism to the water scarcity and hot temperatures, in most villages of Bogos, it is part of the tradition and livelihood for the Bogos youth and

any able person to wake up very early around four thirty in the morning and travel long distances together in a group to collect water and return home playing and singing just in time before the heat of the day begins. It is a happy and pleasant scenario to watch the cheerful happy faces of the youth approaching the village singing with their donkeys carrying special water containers made of goatskin (Delmi); as well as the cheerful and happy faces of the people of the villages coming out from their straw huts (Tkul) to welcome them and assist them unload the unique water containers called “Delmi”.

4.1.3.1 c - Water Quality

As the water shortage became more and more severe, no doubt the quality of water has negatively been affected. It has been observed that, as the water table lowered beyond the reach of the Bogos people, the water drawn from the wells become cloudy and muddy. Also, it has been observed that in different villages as water sources become more and more scarce, humans and animals increasingly use the same water sources which leads to more hygiene and health problems. The inhabitants themselves have described that the water issue is not only about water shortage but also as many villagers are forced to use a single well as their main water source, water related diseases have increased and the health of many communities in the area have been affected. This

was confirmed in many communities just by observing how the villagers use different contaminated containers from different household in pulling water out from the wells rather than just allocate one or a few containers for pulling water out from the well and pour it in everyone's container to be carried home. And many of the villagers suggested that the contamination of the only source of water would have been avoided and the spread of any water related diseases would have easily been controlled if everyone agrees in allocating few containers only to be used in pulling out water.



As Caroline Lees (2003) report from Ashakruk, one of the many villages of Bogos that are badly affected by the draught, “Even before reaching the small village of Asha Kurak, visitors are

Figure 16 - Drawing water from an old well in Ahsakruk. source: Lee, C.

likely to meet most of its inhabitants. Men, women and children, along with their cattle and goats, spend hours each day waiting for their turn to draw water from the village well that was dug by the Italian settlers more than 50 years ago. As buckets are brought to the surface, villagers display their pitiful contents. Cloudy, dirty water, barely fit for animals, is carefully poured into containers to be carried home” (Lees. C 2003).

4.1.3.1 d - Desperation of The Communities

Despite the different adaptation mechanisms to their region, lack of rain, or irregular and inconsistent rainfall during the past twenty-five years or more, led to worse water shortages as the rivers dry out and the underground water table lowered beyond the reach of Bogos people. This jeopardized their livelihood and resulted in food shortages and famine in the region. As reported by Dahl, Eric (2002), the estimated need of water supply per inhabitant per day in the city of Keren is only 8 litres in the dry season of March – June compared to the World Health Organization (WHO) suggested water need per inhabitant per day is 40 litres with a minimal limit of 15 litres per person.

The desperation and the urgency of the water scarcity in many villages of the region can simply be noticed by traveling a short distance from village to village, from one household to another. As many of the inhabitants of the region stated, due to the lack of adequate rain in the past several years, the water level has been dropping slowly. "The region has been affected by drought for a number of years," states Tesfay Tecele, head of economic development for Anseba Regional Administration. "The result is that the water table has dropped from 8 to 40 meters". In many villages the desperate inhabitants unsuccessfully attempt to dig deeper into the ground themselves every year to reach the water table. In spite of

their hard communal effort, in the meantime they have been forced to scrape the muddy bottom of the wells for whatever water they can find. As a result, the people of the region value water as extremely precious resource. When one observes that the villagers themselves drink water only after they hold their thirst long enough and in a very limit amount in order to save and try to make use of every drop of water, it makes you feel very bad to ask for water to drink and prefer to hold on your thirst until you reach a better place. For most people in the world who take water for granted, it is a reality check to observe the different mechanisms Bogos people have created to save any drop of water. As the traditional meal in Bogos is eaten by using the hand, it is the a custom for the young kids to fetch water and wash the hands of the adults by making the thinnest water line from a pitcher (tin). Thus, it makes you wonder when you see a child is being scolded for not being able to make the water line from the tin the thinnest line possible and replaced by another child to take the honour of washing the adult's hand. The process of saving water has become part of their daily life no matter how time-consuming it may be.

4.1.3.1 e - Effect of water shortage on

Bogos People's Livelihood

The precarious nature of the rainfall, which has not only been inconsistent and irregular, but at times nonexistent during the past twenty-five years or more, also has extremely detrimental effects on the sustainability of the main sector of Bogos people's livelihood which is rain-fed agriculture as well as on the community's socio-economic development. Basically, over 90 percent of Blin people live in rural communities that depend on subsistence agro-pastoral activities. Thus, lack of rain, or uneven rainfall during the harvesting season, has a major constraint to the sustainability of their livelihood and in their socio-economic community development as it has an adverse effect on both the harvest from their farm as well as the survival of their livestock. When the harvest fails due to shortage in rainfall, the farmers are forced to use up all the saved seeds and resort to selling some of the dying livestock for extra cash to supplement their lost harvest. Irregular and uneven rainfall also disrupts the adaptation mechanism, as farmers tend to farm all the land the next year in the hope to harvest more rather than leaving some part of their land to regenerate.

4.1.3.1 f - Traditional coping mechanism

In order to cope with the unfortunate situation of water scarcity, the people of Bogos have developed some adaptation mechanisms by creative use of the resource in their region. To assist them in bringing water home and to keep it cool, they created special and unique containers from goatskin called “Delmi” that keep water fresh and very cool. To keep these special containers (Delmi) clean and protect against any contamination of the water, mothers of Bogos treat the goatskin with barks of a unique bush plant called “Himboy”. Also, they use homemade special rope from palm leaves to pull water from the deep wells and to secure the water containers on the back of donkeys. Another astonishing and heart warming part of the adaptation mechanism is a well-developed sense of community and of assisting one another. In many parts of Bogos, the villagers either bring one extra Delmi full of water to the less fortunate members of the village or allow them to use any donkey in the village in the afternoon (after the donkeys had enough time to rest from the morning trip) to bring their own water. In addition to the above adaptation mechanisms, as extra measure in order to save the limited amount of water for the humans, during the long dry season the people of Bogos send their livestock to the neighbouring province of Gash Barka as there is Setit River that flows all year round.

4.1.3.1 g - Recommendations

To alleviate a total breakdown of the socio-economic fabric of the Bogos people and to secure a sustainable livelihood for their community, an urgent measure should be taken to guarantee a sustainable and dependable source of drinking water. The challenge in dealing with such a deep rooted problem of water shortage in Bogos requires an extensive investment and well developed integrated management approach on a different scale, in which households, communities, local administrations, and the national government have to work together co-operatively with any humanitarian organizations. Rockstrom, (1999) noticed that the predominant scale of water harvesting development at present in Eastern and Southern Africa is on a household scale. There are fewer efforts to design and manage water-harvesting systems on a sub-catchments or catchments scale. Farmers will always need support from extension services to design earth dams and gravity fed micro-irrigation schemes. This is true in the case of the communities of Bogos, being part of the developing countries it lacks the financial capability, necessary machines and equipments, trained manpower, as well as self organization, they will always require support from the national government as well as international organizations for a long-term water related goals in a large scale. However, despite the lack of enough trained manpower in the

region, any development challenges should take a bottom-up approach in order to ensure ownership by the community and the sustainability of any long-term projects.

During the interviews with different villagers, it has been emphasized by many farmers that they are willing to assist and participate in any way they can in order to solve their problem. However, they have also stressed that individually they can do very little so they need to be better organized in order to deal with their daily problems. Thus, in the mean time, in order to make a dent in the water scarcity challenge, it is important to use the willingness of the people of the communities to participate in their own development, and allow them to assist in finding necessary short term way of anchoring innovative water harvesting systems in the different communities. This can be done by moulding them within the site-specific topographic and socio-economic context of their communities (Rockstrom, J. 1999).

As per the extensive literature review and research conducted, there are several successful water resource management approaches and studies done in different parts of Africa that have similar water issues. To mention some of the successful water management techniques from African countries: spate irrigation in Sheib Eritrea, in Kenya - the famous Fanya Juu terraces in Machakos district; in Tanzania - Fanya Chini in

Arusha region; In Uganda – water infiltration trenches in Mbarara district; and in Burkina Faso Pitting techniques. In short, in addition to what the Bogos people and other Eritrean communities are already familiar with, there are several other water harvesting and water conservation techniques that can be easily moulded within and adopted to the Bogos people topographic site-specific and bio-physical contexts. Therefore, rather than discussing the different techniques, a flow chart that summarizes the different water harvesting methods, and the relative socio-economic implications of implementing them is presented below.

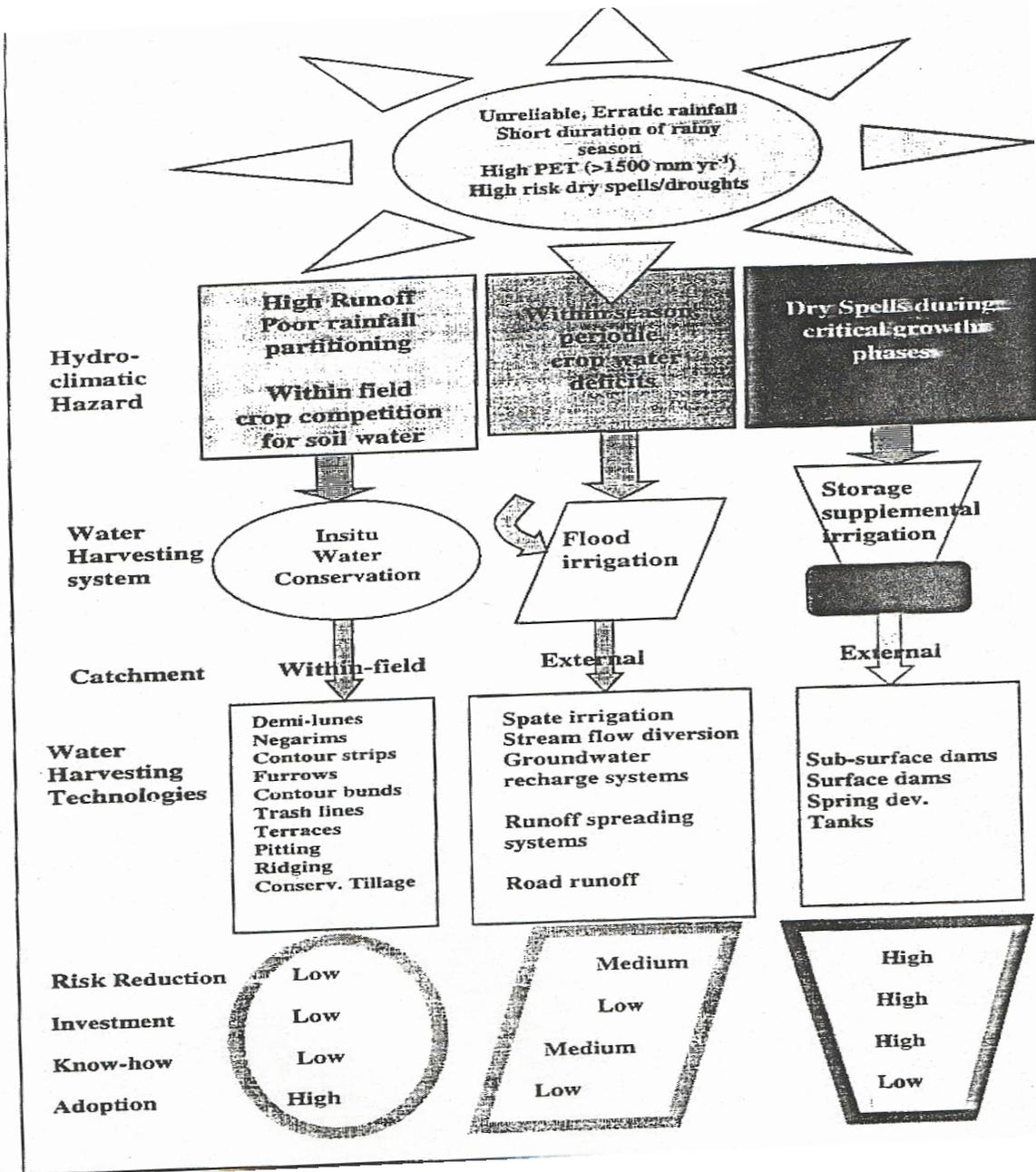


Figure 17 Flow chart indicating the hydro-climatic hazards tackled by different water harvesting methods, and the relative socio-economic implications of implementing them in rural communities. (Source: Rockstrom, J. 1999)

Since the topographic nature of the Bogos region includes the central mountains as well as the beginning of the western lowlands, the landscape differs from community to community. As a result, the water solution for each community should reflect the specifics of the topography and the general objective of any water conservation in that specific community. A separate evaluation and research of each community's situation therefore, is required in order to assess what water conservation technique suits each community better. Each project should take into consideration the unique landscape of the community, and the goal of the water conservation technique that may include alleviation of the drinking water problems, general use for irrigation or/and revival of the underground water. In fact, as a study conducted by Pretty, J. N. et al (2003) in India has proved, more efficient use of water and improved water retention in an Indo-British rain-fed farming project has resulted in underground water table rising by 1 m over 3-4 years and turning an unproductive season into a productive one. Therefore, the above example shows that if there is dedication from investors and governments as well as co-operative community effort, the underground water table of Bogos region can also be replenished. Taking advantage of its unique landscape, instead of waiting for big projects and dams to solve the water problems, the first step is to put an organized

and well planned effort by every community and all government levels, in improving water retention and apply all possible water harvesting techniques according to their ability. Gradually, with the assistance of the existing hills and huge ground bedrocks, these efforts will raise the underground water level and able to turn an unproductive season into a productive one and sustain the communities livelihood and food security.

In the case of the city of Keren and its immediate surroundings, many inhabitants have indicated that Shitaff, Gessr, Shifshifit, water reservoirs on the outskirts of the city should be revived by removing all the silt and apply a continuous maintenance.



Also the long anticipated new dam projects in Stebab and Tunklehas should seriously be considered in order for the water supply for drinking as well as for irrigation farming for Keren city and its surrounding region to

Figure 18 - Photo Shifshifit Lake - Keren be sustainable. The revival of the silted reservoir of Gesir is very important in the socio-economic activities of Keren and its surroundings. If Gessir is revived then it will play a huge role in the revival of the Tunklhas river in the north west as well as it will also revive the Mariam De Arit river in the eastern part of

Keren which in turn means revival of the Delicious Fruits of De Arit and its surrounding gardens.

The writer being originally from Sequar Ashera region of Bogos, understands the natural gift of Sequar landscape for being one of the potential largest natural water dams in the region. The Sequar river having several tributary rivers from the immediate mountains and from as far as the Imba Selasie region, there is more than enough run off water that can be harvested. Therefore, taking advantage of the natural landscape of Sequar, where huge watershed surrounded by big mountains, it is highly recommended to build a small wall at the end of Sequar river in Shafitakh and create a dam by the harvested water for the use of drinking supply, for developing irrigated farming, as well as for potential hydroelectric power for all the surrounding areas most part of Ashera and as far as Glass and Hagaz.

4.1.3.2 Vegetation and Forestry

As mentioned in the preceding topography topic, the vegetation covers of the Bogos region slightly vary from one area to another based on the landscape. Since the location of Bogos is in the central part of Eritrea where the highland and the lowland meet, it consists of a range of mountains as well as vast plains. These wide range in elevation resulted

in difference in the amount of rainfall a sub region may receive, which in turn lead into variety in vegetation cover in terms of type and canopies in the region. Yohannes, Iyassu from MoA, in Ghebru and Kohler (1999) classifies the vegetation cover in Zoba Anseba where Bogos region is located as:

1) Riverine trees

a) In the highlands: *Ficus* spp (Sagla Dairo), *Tamarindus indica* (Humer), *Dispyros mespiliformis* (Aye).

b) In lowlands: *Haephnea* - Dom Palm (Arkobkobay), *Calotropis* (Gindae), *Ziziphus* spp (Gaba).

2) Trees that grow between 450 and 900 meters from sea level: *Acacia tortilis* (Akban Chea), *Acacia senegal* (Kenteb), *Acacia millifera* (Kitrit), *Acacia albida* (Momona), *Balanites aegyptica* (Mekie), *Adansonia digitata* (Duma).

3) Trees that grow between 900 and 1450 meters from sea level, dominated by *Acacia* and *Albizia amara* (Nefasha).

4) Trees that grow from 1,500 m consecutively upwards are *Terminalia brownii* (Woyba), *Acacia ethbaica* (Seraw), *Dodonaea viscosa* (Tahses), *Boswellia papyrifera* (Meker), *Cordia Africana* (Awhi), *Olea Africana* (Awlie), *Euphorbia abyssinica* (Kolkual), and *Juniperus procera* (Thihdi) (Ghebru and Kohler (1999)).

In general, the vegetation cover in terms of its type has significant importance in the sustainability of Bogos people's livelihood. For generations, the Blin people have adapted to their environmental conditions and are able to live with what natural resources their ecosystem provided them. Therefore, the issues of forestation and vegetation cover is highly linked to the issue of traditional knowledge. For the Bogos people each type of vegetation in their ecosystem plays an important role not only environmentally but also in their socio-economic livelihood. Thus, for any forestation policies and projects in the region to be successful, it is crucially important to take into account that each type of plant in the region has direct correlation with the way of living of the people of Bogos. Thus, all efforts should be put towards conserving the existing vegetation type rather than introducing new species into the ecosystem or planting only specific species.

Besides the agro-pastoral activities, a large proportion of the Bogos people depend greatly on forest resources of their ecosystem as their main livelihood or as supplementary to the subsistence farming. The vegetation cover of the region, besides its environmental values, provides several socio-economic benefits. Some of the benefits of forest resources include: firewood for fuel and as a source of light at night, firewood for producing charcoal for local use and for marketing as a source for

obtaining cash; wood and leaves for construction of the local houses (Tkul) and fences around the farms; fodder and browse for livestock; as main source of raw materials for a wide range of products such as local baskets, mats, ropes, and several other farming tools, and household utensils, such as the well known traditional wood made bowl “Hilab”. Other benefits also include the use of bushes and trees as windbreakers in areas where there is high wind, and as part of the solution in preventing soil erosion. Forest resources are also the main source for traditional medicine uses.

As discussed in the preceding paragraphs, the Bogos region is blessed with different varieties of plant species that have several uses in their socio-economic livelihoods. Some specific use of forest resource in Bogos region may include:

Weiba, Tahses, Gomrot are used for special and unique smoke bath by mothers as a cure for several symptoms and to treat their skin; as discussed earlier, Himboy is used to treat a unique water container called Delmi; Gaba and other several wild fruits are used as a supplementary diet; Tahses is used as main source of wood material in building Tkul. Dom Palm leaves are used for making special decorated unique woven mats, carrying baskets, huge grain storage baskets, hats, and sweeping brooms; while its termite resistant stem is used as main

structure for different buildings. Also, most of acacia trees and bushes are used for fencing purposes; they also make excellent choice for firewood and charcoal for local fuel and marketing purposes. In general, there are several plants that can be identified for several different uses in Blin's socio-economic and traditional medicines. Therefore, due to the wide range of benefits the forest resource provides, it is in the long-term interest of the Bogos people and the development of their communities that these forest resources come under sustainable management.

Sustainable reforestation program ensures that the different local plants that have great impact on the livelihoods of the people is given high priority in planting trees rather than planting trees and bushes that are non-native to the region. Also sustainable forest management promotes diversity of tree species and protects the area from being homogeneous with just few plant species, which can lead to lose of biodiversity and a devastating consequence on the socio-economic of the people if the area is infected by any disease.

In the past several decades, due to the long war of independence and the consistent draughts, the number of people who are engaged in producing and selling charcoal wood as well as fire wood as their main livelihood or as supplementary for their subsistence farming has increased dramatically. These activities combined with drought resulted

in deforestation and desertification in the region. Although difficult to enforce, efforts are being made by Minister of Agriculture (MoA) in applying a forest management policy that prevents herders lopping branches for cattle and camel fodder, and prohibits cutting any live tree.

Traditionally, The Blin people have been very respectful of their environment. In general, as this photo illustrates, Blin communities



Figure 19 – Farming technique that support conservation and forestry practice several conservation techniques adopted over generations, such as leaving trees in their farmlands, planting bushes at the edges of their farms and houses, and avoiding as much as possible cutting live trees. When they did have to cut live trees, they, used a special technique in the process of the cutting to allow for regeneration. However, in the past several years, due to the long war of independence and persistent draughts, most Blin people were forced to depend more and more on the forest as their main livelihood, given that subsistence farming had failed.

By taking into consideration that marketing firewood and producing charcoal for cash is part of the main livelihood of Bogos people, it is very important to have a community-based sustainable forest management policy rather than enforcing a general national forest conservation management program. When a community based sustainable forest management approach is taken, then the community takes full control of the programs and takes an active approach in achieving short-term and long-term goals. As a result, since the communities would be less defiant, it would become easier to enforce such community-driven programs. Also, as active partners with the national and regional governments, the communities would fully participate in reforestation projects by identifying what type of local plants to plant and where to plant them, drawing on their valuable traditional knowledge of the region. Community-based sustainable reforestation programs would allow the communities to play a big role in determining their future community development and livelihoods by ensuring that the different local plants that have great impact on their socio-economic livelihoods are being regenerated rather than growing plants that are non-native to the region.

4.1.3.3 Livestock

The livelihood of Bogos people is mainly influenced by their physical location and topography as well as by the immediate neighbouring communities' socio-economic lifestyle. As a result, the livelihood of every community in Bogos is based on agro-pastoral subsistence farming that includes family-based cereal farming, gardening, and livestock.

Livestock resources play an indispensable role in the lives of the Bogos people, as they are part of the main components of food security of the region. Most households in rural Bogos communities do not have the luxury of choosing their meals. They are totally dependent on livestock products such as milk, milk by-products, and meat for their daily subsistence needs. As a result, most of the Blin traditional meals reflect such reality and mainly consist of milk and milk by-products. A good example is the well-known and daily Blin traditional meal called "kala"; which is a thick porridge surrounded by yogurt, and butter poured on a concave on top of the porridge mixed with some spiced hot pepper powder. Households in Bogos depend on their livestock not only as providers of their daily subsistence needs but also use livestock resource to make different products that assist them in their daily livelihoods. As discussed earlier, Blin people use goatskin as a resource to make the

unique water container called “Delmi” to carry water from a distant water source and to keep it very cool and safe. They also use different hide from their livestock to make chairs, beds, mats, and walking shoes. They use milk as a source to whip cream that can be used as the main hair and scalp treatment cream or to make butter for different uses.

Regarding the socio-economic activities, livestock have several important roles in the Bogos people livelihoods directly or indirectly. Eritrea being relatively a new nation, there is not enough investment and technology for Bogos people to depend on. Therefore, following what they have done for generations, the Bogos people value livestock as their main investment to serve as the foundation for many socio-economic activities and the base for livelihoods in the Blin communities. In general, they represent wealth and prestige within the communities, and a sense of security and ability to care and provide for family. Blin people have a special and close relationship with their livestock; they value livestock as part of their family and treat them with respect. For example, it is part of Blin tradition, regardless how poor a household may be, to give the family’s watchdog some milk or food first before the family start to have their meal. Also, Blin communities don’t tolerate any person who treats livestock disrespectfully, and they punish the person by isolating him/her out of the communal life until the lesson is learned.

Since the livestock play several important roles in the livelihood of Blin communities, the following is a summary table to show some of the socio-economic roles of livestock.

Table 2 – Role of Livestock in Bogos Communities Livelihood

Livestock	Socio-economic roles in Bogos communities Livelihood
<p>Cattle</p> <p>Goats</p> <p>Sheep</p>	<ul style="list-style-type: none"> ■ Represent wealth and prestige within the communities ■ Provide milk and milk products for daily subsistence needs ■ Provide meat for household food and for special social events ■ Provide hides to produce different products such as: water containers “Delmi”, grain containers called “Lekota”, shoes, ropes, mats, and to make chairs and beds ■ Can be sold to get cash in order to purchase essential items such as sugar and clothes; also when a farmer wants to restock the livestock of the family, may sell the male animals to buy more females of different breed. ■ During drought years Blin communities use their livestock as their last resource for survival and sell some of their animals to substitute for the lose of farming harvest. ■ Play a big role during marriage ceremonies as livestock are used as dowry to the bride’s family as a corner stone for the new wed to build their family. ■ Used as grievance settlement mechanism among communities such as in case of homicide, and injuries. ■ Oxen are the main resource in cultivating their farms
<p>Camels</p>	<p>In addition to the above socio-economic roles, Camels play a vital role as the main resource for transportation. Many Blin households completely depend on camels for their livelihood to transport fire wood or charcoal to sell in the market or for those who are engaged in cross border trade to Sudan camels are their only resource for their livelihood in transporting merchandise.</p>

Donkeys	Donkeys are mainly used as pack animals. They play important role in getting water from distant areas, carrying firewood and charcoal to the markets, carrying fruits and vegetation from gardens to the markets, as well as for transportation within communities.
Poultry	Used as good gesture to welcome a special guest by preparing chicken meal. To provide eggs for household use and/or for marketing to get some cash to buy other subsistence needs.

4.1.3.3 a - Pictorial Description of Socio-economic Role of Livestock in Bogos Communities



Figure 20 - Camels enhance the livelihood of Bogos people by playing a vital role in marketing fire wood and charcoal.

Figure 21 – Plough the land using Camels

Camels play an important factor In Bogos people's agro-pastoral Activities. Alternative to oxen, as the picture shows, they can be used to: plough the land,



Figure 22 – transporting harvested Cereals to the market



Figure 23 – to transport Hey



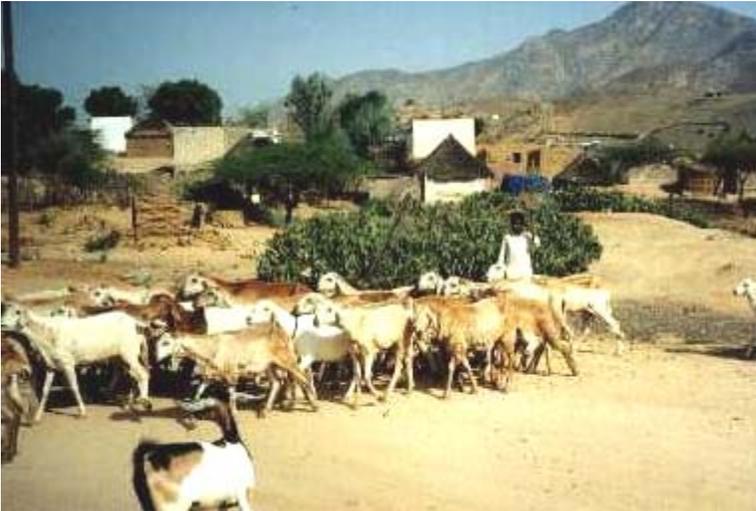
Donkeys are one of the very valuable assets of rural communities. Uses for transporting different things.



Figure 24 - Photo shows donkey carrying containers that brought fruits and vegetables from garden to market.

Figure 25 - This photo shows a responsible youth helping his family earn extra cash by using a donkey to transport firewood for sale at the market.





As agro-pastoralists, Bogos people raise goats, sheep, and cattle to support their livelihood.

Figure 26- Young children look after their sheep and goats by taking them to the nearby mountains.



Figure 27 – It is common to find cattle market on dry riverbeds

around Bogos. These markets are their main source in livestock diversity of a household.

Bogos communities value and appreciate the important contribution of livestock in their socio-economic activities. Therefore, in order to sustain their livelihood and secure their food production process for their subsistence needs, Bogos people adopt diversification of

household livestock as a traditional coping mechanism to minimize risks from drought. Having animal composition with different grazing/browsing capabilities enable maximum utilization of scarce and limited range resources (Hussien, 1988). Goats and sheep, for instance, graze grass and leafage of bushes and shrubs, while cattle and donkeys subsist on grass. Camels, on the other hand, browse on trees such as acacia and shrubs. Thus, by having a mixture of animals in their household livestock, Blin communities increase their recovery chances in cases of drought, epidemic diseases, or an attack from predators. Also as observed and learned from many farmers, Bogos communities take diversification technique one step further. Many households in Blin communities not only have different animal composition but also try to have different species of cattle, goats etc.. For example, many communities are observed to have Barka species and Arado species of cattle. Barka species are primarily owned by households for their high volume milk production; while Arado species do not produce milk as much as Barka and as a result they are mainly owned to be used as a source of meat for the households and during the communities religious and other social ceremonies. Also Arado species are used as a source of income for the farmers by selling them in the market and obtaining cash for other subsistence needs. Further, the oxen are used to plough the

agricultural land. Herd diversification, therefore, serves as traditional adaptation technique to utilize all the resources of the region efficiently and to act as insurance and security for Bogos agro-pastoral farmers.

However, nowadays, some Blin households are observed to adopt foreign cattle known as “Gamus”. In many cases these foreign cattle are not meant for the arid and semi-arid mountainous landscape ecosystem of Bogos. They are animals that are unable to travel long distances. They were introduced by the Italian settlers to be raised at home using stable food and shade, which is not a familiar practice to Bogos farmers. Therefore, despite the large volume of milk Gamus species may be able to produce, they are not only very costly and not affordable by most poor farmers of Bogos, but also they are very expensive to take care of. Some Blin farmers, who have observed and understood the cost of raising Gamus, creatively have created a hybrid of Gamus species and Barka species to increase the amount of milk production without providing an extra care or treatment to the hybrid. This excellent initiative of the farmers should be encouraged and researched more.

As discussed in the previous topics, other traditional adaptation mechanism includes sending the livestock to the Gash-Barka region during the dry season and a drought year to graze around the Setit riverbank. Some Blin communities also send their livestock during the

dry season to Semien Keih-Bahri region where it has opposite raining season. In general, these different age-old traditional adaptation mechanisms help the Bogos people to cope with fluctuations in feed quality and quantity, as well as assist them to sustain basic livelihoods in response to the arid to semi-arid local ecological conditions.

4.1.3.4 Cropping and Gardening

As settled communities, Blin people mainly depend on agro-pastoral activities as their main resource for food security. Blin agro-pastoral farmers use a pair of oxen to plough the land. The ploughing tools used are similar to those commonly used in most parts of Eritrea. They are hand made of different types of forest tree resources. However, those who depend on gardening as their main livelihood or as secondary livelihood, use different hand tools such as hoes to plant their fruits and vegetables.

The crops commonly grown in Bogos region include finger millet, sorghum, maize and ground peanuts. Blin people are known for their finger millet farming locally known “Blug”. Most of Blin traditional meals contain Blug. It can be used unmixed or mixed with sorghum. In the past, as most farmers recall, there were different variety of sorghum

types that grew in the Bogos region. It seems however, for some unknown reason there no longer exist.

Bogos is well known for its fruit production. Some of the famous fruits and vegetation that grow in Bogos gardens include: guava, oranges, lemons, mandarins, papayas, bananas, grapes, and mangos. Some of the fruits that naturally grow in the region include: *Ficus* spp (Sagla, Dairo), *Tamarindus Indica* (Humor), *Dispyros Mesilformis* (Aye), *Haephnea* (Akat), *Ziziphus* spp (Gaba), and *Adansonia Digitata* (Dleb). Besides the other socio-economic value they provide, these fruits are also used as supplementary to the subsistence need of Bogos communities' diet; and in many cases they also serve as a resource for extra cash as they can be sold. Thus, it is very important to keep these in mind when planning reforestation programs in the region.



Figure 28 – Vegetable and Fruits market

Vegetables that grow in the gardens of many Bogos people for household use and for marketing include: onions, tomatoes, potatoes, hot peppers, carrots, cabbage, and many tropical vegetables such as kusta, adri, and shibeni.

4.2 Major Stresses on Bogos People's Livelihood and The Traditional Coping Mechanisms

4.2.0 PREAMBLE

In this section, the different major stresses to the livelihoods of Blin and their local adaptations strategies will be analyzed. In Bogos there are two kinds of stresses. While drought and malaria have been the major and crucial natural stressors; war, lack of capital investment, and inadequate training for human development are non-natural stressors.

4.2.1 DROUGHT

As per OCHA assessment (2001), in Zoba Anseba where Bogos sub-region belongs to, a total of 269, 835 rural persons were affected by the drought in 2000 and required 36, 550 MT of emergency food assistance to ensure a minimum daily intake of 2,100 kcal. Again as Eritrea Food Security Update of August 2002 has reported, cereal and

forage production in 2002 declined by 85 percent and 30 percent respectively as a result, Eritrea would experience an estimated cereal shortfall of about 450,000 metric tons (MT) in the current year 2003.

An isolated drought is rarely a dangerous drought; however as indicated in the preceding paragraph, when a poor year follows others droughts take on unmanageable proportions. The relationship between drought and famine is strong where the resource base is poor, poverty is endemic, and public policy for famine prevention and mitigation is lacking. When these conditions apply, even a single drought may well be devastating.

In the past several centuries, drought was a persistent problem for Bogos region and for east Africa in general. As illustrated by the map below, unfortunately, Eritrea is part of the drought prone region of Africa.



Figure 29
Drought prone regions of Africa
(FAO)

As many people in Africa see disasters as unstoppable acts of God, the immediate reaction of most Blin people to droughts is to accept it as God's punishment for their sins and the deaths caused by the continuous wars in the region. And they use the only tool they have – to pray to God for forgiveness and mercy so God can bring some solution.

As noted by many researches, in most cases, when the drought hits, the poor and the disabled section of the rural communities get affected most as the traditional coping and support strategies become overstretched.

In the case of Bogos, during the drought years, many Blin households do not produce an annual harvest and the livestock are unable to find grass or fodder. As a result, many have been forced to sell their emaciated animals cheaply to buy some desperately needed food for their families. They attempt to survive by stretching all their resources to the maximum. Despite the communal effort to support one another, gradually the poorest households suffer most, as they also don't request immediate assistance because they want to preserve their pride. As a result they even attempt to conceal their suffering just by having a small portion of food once a day or sometimes once in two days.

Also, class, ethnicity, gender, disability and age are all factors affecting people's vulnerability. Those who are already at an economic or social disadvantage because of one or more of these characteristics tend to be more likely to suffer during famine disasters in Africa.

A good example of how gender, age, and other social disadvantages contribute to the vulnerability of many Blin people is reflected in a reporter Lees' reports on Asha Kurukh, one village in Bogos. She reports "Fereja Adala lives with her elderly mother and two young children. Fereja's husband was killed in the border conflict with Ethiopia and the family has been badly affected by the drought. Fereja expressed her desperation by stating, "our harvest failed and we do not have enough food for the children, my elderly mother collects wood to sell when she can, but that work is very difficult. We are not living we are barely existing" (Lees, C. 2003).

When drought became a persistent problem, most farmers in Bogos abandon several local crop species that takes longer time to mature such as "Hiele/Madil" and opted to other crops that mature fast within the shortened rainy season.

The different traditional coping mechanisms to drought have been discussed in each section in detail. However, once these poor families lost all their livestock, and exhausted all the means of getting support

and loans from other family members or from the community in general, as last means of survival, these poor households are forced to give up their pride and are forced to resort to dependence on external assistance. With no food, the people become too weak even to walk far to collect their water, and as desperation grows, many people leave their villages, looking for other ways of finding food or earning money.

Tesfay Tekle, the Mayor of Keren city stated, "The streets of the region's towns are full of people from the countryside selling eggs or hot tea – anything to raise a few nakfa (Eritrean money). The situation is very, very difficult".

The most damaging consequence of draught is the long term effect on the rural communities youth's attitudes and morals toward sustistence farming when it consistently failed them. The youth, gradually lost their believes on agro-pastoral farming as their main sustainable livelihood; and start to look for other alternatives such as owning and working in a shop (Dukwan), working in construction, regional trading, or even education and work in an office or immigration to other countries. The persistence of draught and constant failure of harvest also led to general poor and wrong attitudes towards agro-pastoral farming and considered as a very low profile job by most of Eritreans. In general, these wrong attitudes of the Eritreans who live in

towns and cities led to demoralizing and looked upon the rural communities who are attached to farming as uncivilized and backward. As result, give the villagers different demoralizing nick names and even use words that are associated to agro-pastor such as “farmer” (Harestai), “Sheephard”, “cow boy” (Gwassa), “villager” (hagere-seb) as synonymous to uncivilized and turned them to mean bad words and agro-pastoral farming as a low profile job.

To change the attitude of the society, the government should promote strong pro-agriculture activities, and educate the people regarding the importance of agricultural sector in the economy through television, radio and local papers as well as in classrooms.

4.2.2 Lack of Peace (War)

As the PAR model demonstrates, African Famine is not the result of the immediate drought but it is also, the result of the social, cultural, economic and political environment that makes people vulnerable and affect people's ability to protect themselves against famine disasters or to recover from them.

In Bogos communities the above statement is true in different ways. During the Ethiopian occupation of Eritrea, the rural people of Bogos were special targets of both the King Haile-selassie and the

Communist Dictator “Derg Regime” military policies that treat Blin communities as rebels just because of the way they dress up and for their being located in the central terrain landscape where more of the Eritrean Liberation activities occurred. As a result, they were a quick target for any military officers who dreamed of quick accumulation of personal wealth by looting livestock, accumulated cereal of the farmers, and Blin women’s jewellery. To add to the misery of the people after all the looting they destroyed the communities by fire and reported that they destroyed some bandits and their hide outs. Some individuals or groups of Ethiopian soldiers also made a habit of robbing and killing Blin farmers on their way back after they sold their livestock or firewood and charcoal in the city’s market. In addition to the above, due to their central location the Blin communities repeatedly were the targets of the angry Ethiopian military. After every loss in the battlefields, it was the habit of the Ethiopian military on their retreat to destroy the villages of Bogos by setting them on fire and killing women and children on their way. I feel it is my obligation to commemorate the victims of such inhumane atrocities, at least in their honour to mention some villages as examples in this research. Even though almost all of Bogos communities were affected by such acts of evil, every one would agree that the genocides and destruction of the villages of “Ona” and “Besigdira” were

felt by everyone in Bogos, as it was an evil act in the extreme. In Besigdira, the Ethiopian military forced every one in the village (women, children, and old) to enter in the village's Mosque and locked them then; from the four big windows they opened gunfire and killed the entire community. In Ona, out of frustration and anger for a loss in a battle field, the Ethiopian military destroyed the whole community of Ona by setting fire on the entire village where the smoke and some particles from the fire covered the sky and were carried away by wind for hundred of kilometres. All of these inhumane atrocities of the Ethiopian military not only destroyed many Blin communities' livelihoods but also, literally destroyed many communities. These acts of evil forced the Blin communities to live in terror and abandon any agricultural activities and settlements around the Ethiopian military and most of the able members of the society became one of the early members of the Eritrean Liberation fighters to retaliate and protect their communities.

During the 1980's, the era of the communist dictators "Derg", the atrocities of the military did not stop. As one of the military policies was to mix the Ethiopian and Eritrean population, rape and forced marriages became repeated daily life of many defenceless families in Bogos. These forced many Bogos households that had already lost their able son, to face the reality and assist their daughters to escape these forceful under

the gun marriage and join the Eritrean fighters or become refugees. To make things worse to the communities, during the 80's it was the Ethiopian military desperate policy to take any Eritrean youth and force them as shields in the battlefields against their brothers and sisters in the Eritrean Liberation fighters. Thus, any remaining youths in the communities had to flee to save their lives from such death sentences. Some fled to the neighbouring countries and many joined the Eritrean liberation fighters.

All the above inhumane deeds and policies of the occupying Ethiopian military, drained the communities of their vital human resources and the labour force that the communities' livelihood depended on. As a result, agricultural lands suffered, soil erosions were not taken care of, forests were destroyed to make trenches for fighting soldiers and as a defence measurement not to obstruct view from on coming liberation forces.

Even after the long thirty-years of the war of independence was over, unfortunately, in 1998 another brutal border war with Ethiopia began and again paralysed all the reconstruction plans of new Eritrea and its future development plans. As a result, like the rest of the country, all able youth of Bogos are obligated to join the Eritrean military by abandoning what ever their livelihoods, and leaving their families

behind, as the sovereignty of the nation is above all priorities. Again this drained the labour force of the communities and limited their ability to combat the devastating draughts that destroyed their livelihoods and their food security. As a result, Bogos communities were hit hard by this persistent draughts, and unfortunately, the Bogos communities were once again forced to become recipients of international aid.

In this unfortunate situation, where the nation involuntarily faces war and national insecurity, it is a very difficult challenge for the government to find a balance in the use of the nation's labour force between the obligation of military services and the labour force needed for the national economic development plans. It is very important to move on with the economic development plan of the nation as much as possible; otherwise the nation's economic development plans that have been showing some positive progress would be paralysed and the country would be weakened to defend itself against aggressors. "Maetot" (Student's National Service) and the National military services participation in development plans should be directed towards the assistance of the communities (who lost the majority of their labour force to national defence) in combating drought and enhancing the sustainability of their livelihoods.

4.2.3 Lack of Capital Investment and Trained Manpower

In recent years, United Nations recognized that in order to achieve Sustainable Agriculture and Rural Development goals, it requires action in three key areas: a) Build people's capacity and strengthen institutions, b) Mobilize investment in the rural areas, and c) Develop technologies that enhance productivity, and conserve natural resources. This dictates that, in order to participate fully in their own development, it is very important to build people's capacity by providing them with access to basic education, technical, environmental and economic knowledge, and to share with them information and experiences (UN 1992).

Bogos people currently lack the capital investment, well-trained human resource, and technology. Besides the lack of peace and persistent draughts, Bogos people's livelihoods suffer from lack of capital for investments, and immigration of the educated and trained youth to the cities or to other countries for search of good paying jobs as their rural communities are not developed yet to provide them with any opportunities.

Most of Bogos people do believe that now that they have tested the meaning and value of peace, once the border conflict is over their main obstacle in achieving sustainable livelihoods and food security is lack of

capital. There is no question about their willingness to participate in any sustainable development projects and their strong work ethics, but they feel they badly need some initial capital for investments to keep the communities alive and to keep the youth and the educated in their region. In most cases banks are not willing to lend money to poor rural households, as they do not possess enough assets. Therefore, in this case international organizations such as the United Nations and the World Bank should interfere in assisting the Bogos people in bringing some capital to the region. At this point, on behalf of the Bogos people I would also like to appeal to Euro Action Accord, Danida, Ockenden Venture, and other similar humanitarian organizations to bring their services in assisting small businesses with initial investment capital loans and on the job training programs to Bogos region.

4.2.3 Impact of Malaria on The Bogos People's Livelihood

Malaria is another natural stressor in the livelihoods of Bogos people. Malaria being one of the main health issues in the region, it claims lives of many people and negatively affects the livelihoods of the communities. This study addresses the impacts of malaria disease on the socio-economic livelihood of Bogos people rather than the health issue.

When the bread owner of a household is sick with malaria, the life of the household changes dramatically. The family's fate is tied to that of the breadwinner for food to eat and with symptoms of malaria the person becomes too weak to move around and even to eat or drink.

Many other serious diseases predominantly found in poor countries and communities like Bogos clearly are a consequence of poverty, caused by inadequate sewage treatment, unsafe drinking water, poor hygiene, or substandard housing. Malaria, though, does not follow this pattern – it's severity, and the difficulty in eradicating it, are determined mainly by climate and ecology. Malaria risk has always been very geographically specific. Severe malaria is confined to the tropical and subtropical zone. In Eritrea, Bogos region is one of the malaria zones.

Malaria in Bogos region does not only cause ill health and death but also has a great impact on the economic development of the individual, the family, and the community as a whole. By infecting families mostly during the rainy season when families least afford to be sick, malaria interferes with the farm activities thus causing poverty in families. In schools it is one of the main cause of absenteeism from school and thus affecting school performance and learning ability. Thus,

it has serious economic and socio-cultural consequences in families and the sustainability of their livelihood.

Unfortunately, there is very little communities can do regarding malaria. They use smoke around the family house as a traditional protection mechanism. Those who can afford to buy mosquito nets to use at night when they sleep. Otherwise, Bogos people depend on the national and international government and NGO to protect them and provide them medications from this devastating disease.

Chapter Five

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.0 Preamble

The primary purpose of this study was to assist the people of Bogos in analyzing and determining the sustainable livelihood factors that assure a long-term food security and community development in the region. To reach that goal many specific objectives had to be identified and achieved. In this section, following the summary, a conclusion of this study will be presented based on each of the objectives identified in chapter 3. In addition, this chapter presents some realistic and achievable recommendations for further consideration in sustainability of the livelihood of Bogos people and their community development in becoming self-reliant in food security.

5.1 Summary

This study began in September 2000 as partial fulfilment of Natural Resource Management Masters Degree at the University of Manitoba. The main purpose of this study was to assist the people of Bogos in analyzing and evaluating the sustainability of the main livelihood factors of the region in order to ensure long-term food security and community development in Bogos - Eritrea. The research began with a comprehensive review of literature to analyze the existing literatures on sustainable livelihood, food security, and community based sustainable development. In addition, the current food security policy in Eritrea and the peace agreement in the region that have big effects on the sustainability of the livelihood of Bogos people and their communities were addressed. On July and August 2001, I conducted my field trip to Bogos region where I lived among the Bogos people and physically participated in many social and religious activities. I conducted interviews with the local people to assess and evaluate the present situation of their livelihoods. Realizing that many of the people of Bogos are in the diaspora, I consulted and invited input of many Bogos people in North America, Europe, and Australia through a questionnaire.

5.2 Conclusion

The wide range of socio-economic findings of the study can be categorized into two major findings. Socio-economic factors contribute to the sustainable livelihood of the Bogos region. These findings relate to the major ecological as well as the non-natural factors that create stress and threaten sustainability and long-term community development of the region. These major findings are summarized in this section relating back to the research's objective.

The broad objective of this study was to assist the people of Bogos in analyzing and assessing the sustainable livelihood factors that assure long-term food security and community development in the region. Specific objectives that were identified in chapter one are:

Objective One was to develop a community profile of Bogos region by analyzing the ecosystem of the region and assessing the natural resources and the unique Bogos peoples' socio-economic activities that are vital in the sustainability of their livelihood in securing a long-term food security in the region.

The community profile is the basis of any study; without a community profile it is very difficult for any research to develop a sound and workable sustainable development strategy for any community. As a

basis for future study in the region, the researcher has successfully developed a community profile for Bogos people.

In the ecosystem section of the profile, the unique geographical location and topography; climate and ecology; and soil of the region has been discussed in detail. This section concludes that due to the region's unique topography that joins the central range of mountains and the western lowland plains, climate and the vegetation cover slightly differ from one sub region to another. However, the socio-economic activities of the Blin communities during the different climate of the four seasons are the same.

With Bogos people engaged in agro-pastoral activities as their main livelihood, soil quality and soil erosions became one of the main issues in achieving sustainable livelihood and food security in the region. The researcher has identified lack of peace, drought, groundnut plantations, and deforestation and desertification as main factors towards soil erosion in the region.

The social and economic activities and related developments undertaken by certain society, particularly in the developing nations remain the by-product of the natural resources available to them. These in turn are relative indications of the ecological nature and climatologic conditions of the land. The study finding concludes that, as an

important component of the Bogos People profile, the natural resource base of the region that include water resource, vegetations, forestry, livestock, as well as cropping and gardening are historically very critical in the survival, subsistence, and livelihood means of the communities.

The central geographical location of the Bogos region links the more settled subsistence farming of the highlanders and the pastoral activities of the lowlanders. The research, thus, determines that geographical location has influenced the socio-economic aspects of Bogos people profile. Given that Blin communities adapt to agro-pastoral activities as their main livelihood, the unique socio-cultural aspect of their communities are ideally suited to this.

In short, Bogos region consist of many communities that have similar background history, languages, and socio-cultural activities. These unique community profiles should be understood and respected in any community development research and policy that affects the sustainability of their livelihood.

Objective two was to analyze the different natural resource factors in the region. This required a focus on the issue of water scarcity that have high impact in the Blin communities' livelihoods in achieving long term food security and community based sustainable development.

The findings show that in Bogos almost all the rural communities a primarily depend on and involve in natural resources based activities. Subsistence activities provide sustenance, and employment. Basic needs of the society are met in this way gleaning potable water, raw materials, food, fuel wood, and charcoal. Extra cash is also obtained.

As a vital resource to life in the arid and semi arid region of Bogos, water scarcity is the centre of attention in any sustainable livelihood program. Water resources command, lead, even shape the life styles and livelihoods of Bogos communities. Water shortages are a critical constraint in the communities' sustainability. This scarce resource, not only affects the well-being and health of the people of Bogos and their livestock, but also influences the communities' ability to utilize other natural resources.

The above findings of this study are to a large degree consistent with similar research/study in other developing countries. For example, world resources (1987), note that in the developing countries, such as Eritrea, the role and significance of the natural resources is well recognized. They serve as the basis for social and economic activities and developments, as means for livelihood and welfare, and cultural and spiritual focus of the population (World Resources, 1987).

The different traditional coping mechanisms the communities that worked for generations are severely challenged by war and the persistent droughts for several years. This has led to a very desperate situation that requires immediate attention by resources from the world community. In order to end the on-going suffering of Blin communities international sponsorship of an integrated and community-based development approach is required to assure the sustainability of Blin livelihoods and achieving long-term food security.

Objective three was to assess and present the unique socio-cultural aspects of Blin Community in sustaining community based economic development.

A key finding of the study is that in achieving a sustainable community based economic development, the unique socio-cultural aspects of Blin people should be addressed and respected. This is consistent with the view by Singh and Kalala (1995), foreseeing sustainable livelihood as concerned with people's capacities to generate and maintain their means of living, enhance their well being and that of future generations. These capacities are contingent upon the availability and accessibility of options that are ecological, socio-cultural, economic and political and are predicated on equity, ownership of resources and participatory decision-making.

Blin people value their unique socio-cultural activities very much. Any sustainable livelihood strategies and policies that doesn't support or complement with their socio-cultural aspects have very little chance of success regardless its importance or time and money invested on it. This study has demonstrated the special and unique socio-cultural aspects of Blin people that should be understood and respected by any program or policy in assisting the region in achieving long term food security and community development. For Bogos people, social and cultural issues are the bonding aspect among the different communities. It is very difficult to analyze the sustainability of the region or to have an effective and efficient strategy or policy without a comprehensive understanding of the Bogos people's social and cultural issues. Blin people always welcome development policies and programs that do not destroy their identity but accommodate for their unique socio-culture.

Objective four focuses on the analysis of the major ecological and socio-economic stress factors to the sustainable livelihood in the Bogos region and the traditional coping mechanisms.

A key finding of the study is that drought and malaria are the two major ecological stressors. War, lack of capital investment and trained manpower are the main non-natural stressors to the sustainability of Bogos people livelihood and communities socio-economic development.

The study further found that due to the harsh and persistent natural and man-made stresses faced by the Bogos people, for generations they attempt to sustain their livelihoods by creatively developing some traditional coping mechanisms to adapt to such harsh environment and circumstances.

Objective five was to recommend and present an action plan appropriate to the needs of the Bogos people.

The next section of this study presents a proposed recommended action plan. It includes a community based sustainable development approach that has an integrated and holistic approach based on adaptive strategic methods. Such approach assures the sustainability of the people's livelihood in securing a long-term food security and community based economic development.

5.3 Proposed Recommended Action Plans

The following recommendations are by no means exhaustive. Rather they are modest by any standard, given the uncertainties involved and the relative high magnitude of the current situations. However, they are realistic and achievable recommendations in the long-run.

After analyzing and assessing the main sustainable livelihood factors in Bogos region, this study recommends a community based sustainable development approach. This approach provides integrated

and adaptive management as key elements to ensure the future success of Bogos communities in achieving community development and food security.

I call on all parties including the national and local government, the international community of donors and NGOs, church and other community organizations to integrate their efforts to:

5.3.1 Community based development strategy

a) Promote and facilitate community based sustainable development that assures the communities of Bogos the ownership of any programmes and projects towards the sustainability of their own livelihoods. This ownership of their own development programmes will:

- i) Encourage the people of the communities to actively and fully participate by proposing initiatives that they think will enable them to improve their livelihoods while maintaining and even improving the forest, soil and water resources in their environment.
- ii) Empower the communities to prioritize and manage their future progress in a holistic and integrated approach rather than fragmented individual development

programmes imposed on them from different organizations and institutions.

- iii) Assure the real and main objective of any of the development programmes is to promote long-term sustainable livelihood. Community development must achieve food security in the region rather than just be another project to promote some institutions' or individual's unseen goals. As many past experiences have proved, the main concern is just how to complete the project to give a report that they have done something by program developers or managers who do not live in the community. There is no follow up on the programs to provide necessary support or even to evaluate its success. As a result, most of the time, despite all the capital and time invested, the communities have no improvement in their livelihoods.
- iv) Empower communities with the ownership of their own development programs. This allows communities to apply an adaptive management approach to deal with such "resource management realities" (change, uncertainty,

complexity, and conflict) to secure the sustainability of any of their community development programmes in achieving long-term food security.

b) Promote an integrated and holistic sustainable development programmes at a community level with realistic well developed and defined: common vision, goals and specific objectives, work programs with well-established priorities. Addressing community issues in isolation eventually ends up hurting some other part of the community's health. For example, if a community focuses only on economic issues, the environment usually suffers or vice versa. Only by addressing such issues in an integrated fashion can a healthy community be developed which can thrive for generations.

c) Bogos non-government and government organization should assist co-ordinating Bogos communities into effective community-based organisations (CBOs). This assistance would help them to realise their own management and resource mobilization potential in solving their own development problems. Identify local leadership and train the leaders in understanding the whole process of community based sustainable development. This can be achieved in Bogos through active participation of NGOs in

the area. Historically, Christian Brothers (La Salle), and Peneditians (Sitawian), have very high impact on the socio-economic aspects of Bogos people. Thus, with collaboration with the national and local governments, if these organizations are given the mandate of promoting community based development, they can easily do so.

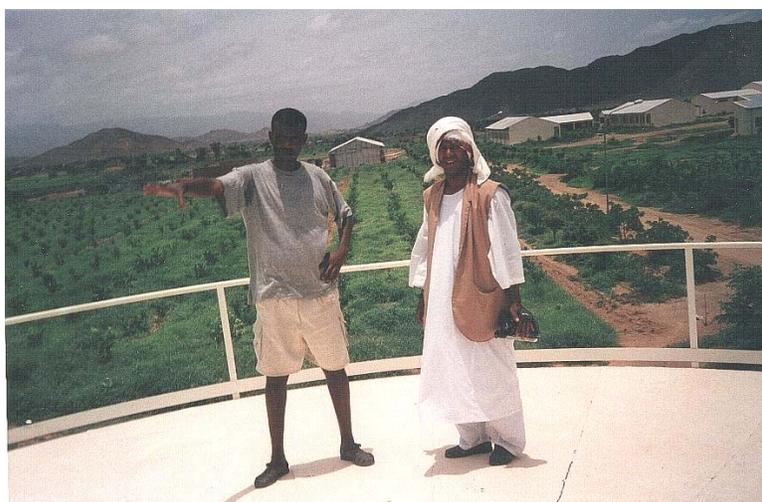


Figure 30 - Photo of Author at Hagaz agro-tech in Bogos

They already have institutions such as La Salle elementary school and technical vocational school in Keren, the new Hagaz agro-tech institute and plantation in Hagaz, Comboni Missionaries in Halib Mentel, and Mariam De Arit Farmer's training centre and plantation to organize the communities. These organizations and the Bogos community have already developed mutual trust and respect through generations long relationships.

As Bro. Amircare, Director of Hagaz Agro Tech, puts it “yes this new plantation is beautiful and nice. However, it is futile if it doesn’t contribute on the sustainability of the daily livelihood of the surrounding communities”.

d) Also, nowadays, since the catholic church has provided a Bishop in Keren, as most of the priests and students are originally members of Bogos communities. The catholic church can be an effective instrument in assisting its constituencies in achieving sustainable livelihood and community development. This church could give the extra mandate to its priests and students to not only religious issues but also to be active participants on sustainable community development programs. This follows the good example of Fr. Kiflemariam Fadega. As part of the educated members of the Bogos people, the priests, Christian brothers, nuns, and the students are the human resources of the communities. Therefore, as educated members of the communities, they have both social and moral responsibilities to contribute back to their communities in achieving sustainable livelihood and community development. Their communities and constituencies need them. They are already perceived and accepted by the communities as leaders, so they can be of assistance stimulating local communities to organize. I would like to take this opportunity to call on our new Bishop, Honourable

Bishop Kinane Yebio and all the church organizations in the region to accept sustainable community based development as a key factor in achieving sustainable livelihood and long-term food security in the region. And with the collaboration with the national, local, and other NGO working in the region be the voice of the people to achieve the ultimate goal of sustainability. As the people of Bogos already put their trust on you, I urge you to be the advocate of their sustainable community development and consider providing more training to the priests and students in how to accomplish the sacred task of environmental stewardship as part of their mandate.

5.3.2 Water resources

The significance of water shortages on the livelihood of the people, and the desperation of the people of Bogos were discussed in detail in chapter four. There is no doubt that water is critical to the very existence of the people of Bogos. The provisions of safe and adequate water supply for human as well as livestock consumption would sustain and enhance the productivity of the Bogos people's livelihoods, particularly the agro-pastoral activities, and would go a long way to reducing sanitary and health problems in the region. In light of the current water resource

problems and its widespread deficiency, this study additionally recommends:

a) Promoting and supporting the rural communities in designing and adapting different water harvesting techniques that are moulded to the specific sites of the communities. This study identified that Bogos people do believe that the water resource problems and the underground water issues, can be solved. So by giving immediate and full attention to the crucial issues of water problems in the region,

b) co-ordinating a task force in the region that consists of representatives from the different NGO sectors, National and Local governments, and definitely full participation of Bogos people in identifying and implementing a sustainable long-term solution to the water problems.

c) In addition to the indigenous water harvesting techniques of the local people, promote regional and more organized higher-level water harvesting techniques. As in the case of the re-forestation program, since the water problems in the region is very critical and requires an immediate attention, it is highly recommended to involve and organize the local communities, students national services, and/or assistance from the national military services in addressing the issue.

d) Take advantage of the unique topography of the region that consists of mountains and planes, it is very important to concentrate more resources into recharging the shrinking underground water that has high impact on the sustainability of the region's livelihoods. This can be achieved by harvesting any rainfall in the region using different techniques such as building catchments, terraces, contour strips and bunds, pitting, diverting rivers to fields, and building water reservoirs and dams.

5.3.3 Subsistence farming

a) Acknowledge that subsistence agro-pastoral family farming is not just a means of production, but it is also the backbone and main source and factor of many Bogos people's livelihoods. That most of the communities' livelihoods and socio-cultural aspects depend on small family agro-pastoral farming serves as communal cohesion and the people's dignity and pride. Taking this into consideration, develop policies and programmes that promote small agro-pastoral family farming in the region rather than focussing in developing large plantations in a more fertile area at the expense of the small family farming in the communities.

b) Promote an integrated approach as the key in agricultural and rural development in Bogos region as subsistence family farming is not

an isolated and separate program from other important issues of rural development such as water, soil, forestry. All these issues are interconnected and affect the success of one another.

c) Create a rural communities development bank that allow some credit to the poor rural households. Due to being continuous victims of war and the persistent droughts, most of Bogos people are understandably poor and do not possess many assets that banks require to provide them loans. This study recommends that the national government with co-operation of international organizations develop rural communities development credit policy to give head start to the hard working rural communities.

d) Link agriculture and rural development to the community based development and the different national services programmes. This will assist the rural communities in solving the rural manpower shortages during the busiest time of the rainy season and encourage them to plan bigger projects for their communities that might not be possible without the assistance of the national services programs and communities organizations. As part of this program, students from high schools, universities, and particularly from agricultural institutes can be allocated to different communities to assist with the sustainable agricultural and

rural development programs while they at the same time gain excellent practical experience.

e) Take advantage of the presence of the different agricultural plantations and institutions in the region for data collection and for more research regarding agro-pastoral farming such as: seedlings, fertilizer, soil erosion, and keeping statistics of climate, rainfall, market price, etc

5.3.4 Livestock

- a) Promote and encourage the traditional livestock diversity approach.
- b) Promote the hybreeding of Gamus and Barka rather than just having the costly Gamus species.
- c) Provide veterinary assistance to the communities.

5.3.5 Forestry

a) Continue with the reforestation programs, however keep it linked to the sustainable community based integrated approach so the local communities become the key players in their future sustainability and voluntarily participate and initiate ideas.

b) Adopt a policy that encourages the communities to plant trees not only on the surrounding mountains but also within the communities. Provide incentives to the local governments as well as households to plant trees along the side of roads in their communities and for every

household to adopt one or more trees within their properties. These trees can easily be care for just with the wastewater of the households and the market places. However, the long-run these trees within the communities will have high environmental and economical impact in the communities and the region in general.

c) Promote planting of local plant species as these plants has historic and socio-cultural connection to the Bogos people's livelihoods.

d) Promote diversification approach with the local communities tree planting program as diversification increases the chances of survival of the plants when there is unfavourable conditions or unexpected diseases.

5.3.6 Capital investment and trained manpower

Many Blin people indicated during the interviews and in the questionnaire responses that lack of initial investment capital discourages and hinders them from working to their full potential.

Keeping such reality in mind, this study recommends:

a) Develop Agricultural and Rural Development Bank/credit union that encourages rural communities in planning and organizing personal and communal projects that wouldn't be possible without an initial capital investment.

b) Encourage and support NGOS, under the umbrella of the local government, that provide credits or materials that are required for initial investments to the rural communities such as Euro Action Accord, and Danida.

c) Enhance productivity of the rural communities by providing different training programmes based on local knowledge through the national and local governments. Also encourage NGOs like Ockenden Venture that are specialized on the job training programmes in assisting the rural communities in learning different skills, and empower them to do things locally and by local manpower.

5.3.7 Regional trade

a) Assist and provide the rural communities with information regarding markets for their goods and products.

b) Provide training about marketing, trade, and small business managements to the rural communities. Design the training programs such that they could benefit local people regardless of their lack of formal education.

c) Take advantage of the geographical location of Eritrea on the map, it is very advantageous for the national government to have markets and strong trade agreements with the oil rich Arab world and

the highly populated near east Asia. This study, thus, recommends during this globalization era, to have an organization of Red Sea and Indian sea Nations that links Africa and Asia. This organization will provide markets to the African countries and especially rural communities such as Bogos will thereby have incentive to be productive once they know there is market for their produce. Also such organizations will enable the nations to transport goods through their common boundaries of sea and ocean cheaply and efficiently.

5.3.8 Information and Communication

In the past during the Ethiopian occupation of Eritrea, farmers were scared for their lives. They preferred to stay away from the local governments regardless of their farming problems. They had no assistance from the government regarding farming. However, now that Eritrea is an independent state, Ministry of Agriculture (MoA) and the local government in the area are putting extra effort in assisting the farmers with valuable information.

In order to facilitate the information exchange and communication issues in the region, this study recommends:

a) It is hard for the farmers after more than 30 years fear of local government officials suddenly to initiate communication and have open

information exchange with government officials. By understanding the past history, MoA and local government officials should not be discouraged if the rural communities do not jump to take the opportunity the services they offer them. Rather, the officials should initiate communication using different methods to make the farmers comfortable.

b) Focus on combination of theoretical training and on the job training rather than only passing information that the farmers might find hard to actually implement in real world.

c) Take advantage of the NGOs in the region and pass information through them. As discussed earlier, Bogos communities historically has a strong relationship with the missionaries in the region. Take advantage of such trust, and work together with the missionaries to enhance the communication and information exchange between the communities and the local governments.

d) Promote participatory approach in exchanging information and communicating with the communities. Don't allow for a top-down communication hierarchy; such as farmers verses MoA and local governments. Allow MoA and local government staff to actually participate with the farm activities of the local communities and be there

to answer questions and to show how things can be done differently and efficiently.

e) Hire local people from Bogos to be part of the MoA and accommodate the flow of information as they know the language and the local people better.

f) Adopt community based sustainable development approach that organize local people by communities. This approach will facilitate open communication not only with MoA and local governments but also across communities. Once communities are organized, exchange of information will flow both vertically and horizontally among the different communities.

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APPENDIXES

APPENDIX 1

QUESTIONNAIRE

Full name _____

Originally from which town or village in Eritrea _____

Current Residence of which country _____

For further contact

e-mail address _____

Telephone /Fax _____

Please answer the following questions and remember, this is a thesis paper so please don't include political issues in your response. If you have any other suggestions please don't hesitate to share it with me.

Q1. What are the main livelihoods of Bogos people? How can we enhance the sustainability of these livelihoods? Is there any new livelihood that you think will be good to introduce to the Bogos people?

Q2. In your opinion what are the most crucial problems that threaten the sustainability of the livelihoods of Bogos people?

Q3. What is your suggested solution for the problems you mention in (Q2)?

Q4. What are the main ecological and socio-economic stresses in the Bogos region?

Q5. What are the local strategies for dealing with such stresses?

Q6. Do you know of any kind of crops, trees, or vegetation that used to be grown in Bogos but for some reason are no longer grown there or are no longer used by people of Bogos? (eg. type of sorghum).

Q7. What crops and plant species do you think play very vital role in the livelihood of Bogos people that should be protected?

Q8. Subsistence farming is one of the main livelihoods of Bogos people. What strategy do you suggest in improving agricultural productivity?

Q9. Women play a big role in Bogos socio-economic activities. Is there any suggestion in increasing women's productivity?

Q10. As you may be aware, lack of water and low underground water table are a big issue in Bogos. Do you have any suggestions as to how these two issues may be resolved?

Q11. Considering that the ground water table has been so low and is threatening the livelihood of most Bogos people, do you think building water reservoirs, and catchments, as well as dams is critical for the survival of our people? Do you think such action is very important in order to secure a sustainable livelihood for our people in spite of the probability of flooding in some area?

Q12. Do you have any good location in mind for such reservoirs and dams to be constructed?

Q13. Soil erosion and soil fertility is another big issue that threaten the livelihood in Bogos region. What are the local strategies that our fathers used to deal with such problems? Is there any suggestion for solving soil erosion and soil fertility issues?

Q14. Do you think organizing the farmers and women in groups in every community will result in a stronger sustainable community-based development strategy in the region?

Q15. Do you agree that the main goal of any project or research should be the long-term practical sustainable development of the local people of Bogos rather than achieving a short-term theoretical goal of the researcher?

Q16. Do you also agree that in order to achieve and secure a comprehensive sustainable livelihood for Bogos people, community-based economic development strategy is very important as it gives the communities ownership of all projects and researches; and allow them to initiate, priorities, enhance, integrate, and co-ordinate among all the different development researches and programs towards their long-term comprehensive practical sustainable development goal even long after the researchers have completed their specific projects?

APPENDIX 2

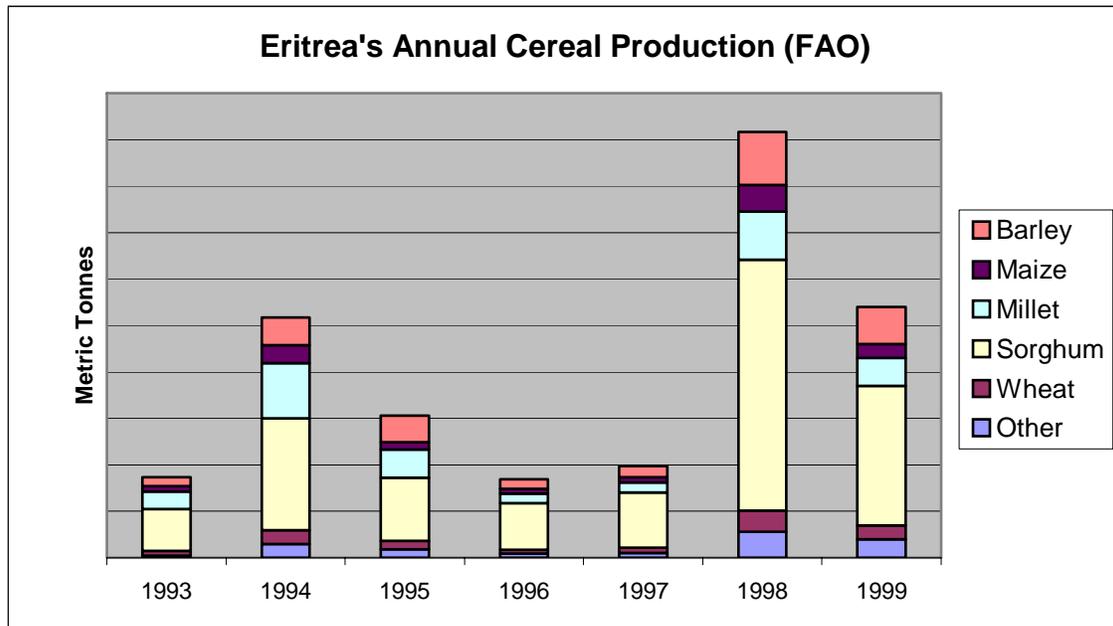


Table 3 Annual National Cereal production (FAO)

