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DEPARTMENT OF PUBLIC ADMINISTRATION AND DEVLOPMETN MANAGEMENT

ENVIRONEMENTAL POLICY INTEGRATION IN ETHIOPIA: CHALLENGES AND PROSPECTS FOR SUSTAINABLE SOCIAL AND ECONOMIC DEVELOPMENT

A senior essay presented to the school of graduate studies, Addis Ababa University in partial fulfillment for the requirement of masters of Arts degree in public management and policy (Policy stream)

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This is to certify that the thesis prepared by Negede Samuel, entitled: Environmental policy integration in Ethiopia: challenges and prospects for sustainable social and economic development in Ethiopia submitted in partial fulfillment for the requirement of masters of arts degree in public management and policy (policy stream) complies with the regulations of the university and meets the accepted standards with respect to originality and quality

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Thesis advisor

Declaration

I, Negede Samuel declare that this thesis entitled “environmental policy integration in Ethiopia: challenges and prospects for sustainable social and economic development in Ethiopia” is outcome of my own effort and study and that all sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the thesis advisor.

This study has not been submitted for any degree in this university or any other university. It is offered for the partial fulfillment of the degree of masters of Arts degree in public management and policy

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List of Acronyms

AA-LRT	Addis Ababa Light Railway Transit
COPD	Chronic Obstructive Pulmonary Disease
CPI	Climate Policy Integration
CRGE	Climate Resilient Green Economy
CSA	central statistical Authority
CSE	Conservation strategy of Ethiopia
EDHS	Ethiopian Demographic and Health Survey
EFCC	Ethiopian Environment, Forest and climate change commission
EIA	Environmental Impact Assessment
EPE	Environmental Policy of Ethiopia
EPI	Environmental Policy Integration
FAO	Food and Agricultural Organization
FDRE	Federal Democratic republic of Ethiopia
GDP	Gross Domestic Product
GERD	Grand Ethiopian Renaissance Dam
GIS	Geographical Information System
GTP	Growth and Transformation Plan
HEPI	Horizontal Policy Integration
IBC	Institute of Biodiversity Conservation
IUCN	International Union for Conservation of Nature
MEAs	Multilateral Environemental Agreements
MoARD	Ministry of Agriculture and Rural Development
MoWIE	Ministry of Water, Irrigation and Energy
MOFED	Ministry of Finance and Economic Development

NGO	Non Governmental Organization
PASDEP	Plan for Accelerated Sustainable Development to end Poverty
PRSP	poverty reduction strategy paper
REAs	Regional Environmental Agencies
SD	Sustainable Development
SEUs	Sectoral Environmental Units
SLUP	Strategic Land Use Plans
SLWM	Sustainable Land and Watershed Management
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Commission for Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental programme
VEPI	Vertical Environmental Policy Integration
WB	World Bank
WCED	World Conference on Environment and Development

Abstract

After 1987 onwards sustainable development becomes a guiding concept defining nations growth and development aspirations. The recognition of the concept by the UN in 1992 UNCED takes the concept to the international political arena. Since then different implementing instruments were devised and efforts were exerted in harmonizing and conceptually defining development as mechanism of balancing environment and development. But the aspiration for balancing environment and development is subject to multiple interpretations and understandings thereof are multiple. Given this EPI is recognized as a conceptual framework for prioritizing environment over other economic and social issues and making as an umbrella concept driving the admission of the world poor to substantial level of modernization.

This stdy is mainly concerned on identifying challenges and opportunities for EPI in Ethiopia the underlining force driving such aspiration being sustainable social and economic development in Ethiopia. Along with it identifying the issues necessitating EPI in Ethiopia is discussed, legal and institutional framework for EPI explored and discussed and in addition what EPE is trying to integrate, how it is integrating, why it is integrating are identified. In doing so the study adopted a desk review methodology and document analysis technique. The findings of the study have showed that the policy is comprehensive enough in defining the integration of environmental aspect in to other sectoral and cross- sectoral policy areas. There are also regulations and proclamations guiding the specific implementation and prescribing behavior but implementation thereof is handicapped by; Skewedness towards quick economic achievement, Weak and unstable institutions at the Regional levels; Absence of Sectoral Environmental Units in the Federal Sectoral Institutions; Lack of adequate infrastructure and skilled human resource; Weak environmental legislations enforcement capacity ; Financial limitations; Absence of functional linkages among and between various state and non-state actors; Lack of environmental awareness and limited integration of environmental issues in formal education; Inadequate environmental information and lack of environmental information system and networking; Absence of environmental accounting systems in the National Income Accounting of the country or regions; Lack of awareness on environmental investment opportunities among the private sectors; Poor implementation of punitive and incentive measures enshrined in different environmental instruments. In order to minimized these challenges promoting environmental awareness, strengthening regional environment laboratories, establishing environmental information system and networking, developing and implementing human resource development programs, strengthening national environmental policy and strategy coordination mechanisms, initiating environmental accounting, promoting eco-investment, promoting environmental research, developing incentive structure and enhancing enforcement capacity of both federal and regional environmental agencies is recommended

Chapter 1

1.1. Introduction and background

Sustainable development has introduced itself to the world by environmental movements. Evidently the concern for environmental protection has recurred in diverse forms in different parts of the world throughout history but after industrialization the concern has grown in to organized movements (Long, 2013). The origins of the environmental movement lay in response to increasing levels of smoke pollution in the atmosphere during the Industrial Revolution. The emergence of great factories and the concomitant immense growth in coal consumption gave rise to an unprecedented level of air pollution in industrial centers; after 1900 the large volume of industrial chemical discharges added to the growing load of untreated human waste has increased the popular concern of the subject (Fleming et.al, 2006)

Such has led to an organized movement for environmental protection and lobbying. These movements backed by serious of publications by many scholars have successfully brought the attention to the world. The UN's first major conference on international environmental issues, the United Nations Conference on the Human Environment (also known as the Stockholm Conference), was held on June 5–16, 1972 (Jhon and Steve, 2006). It marked a turning point in the development of international environmental politics. This meeting has come up with a declaration containing 26 principles concerning environment and development and has led to the divisions between developed and developing countries with what development is and how development is to be (Middeltonetal, 2006). But major development; the recognition for poverty alleviation for protecting the environment has emerged with the intention of admitting the world poor to a substantial level of modernization.*Ibid*

Given such, a number of global environmental challenges were found to be not adequately addressed. Particularly the underlying problem of how to reduce poverty in low income countries through more productive and industrialized economy, with out in the process, exacerbating the global and local environmental burdens remained unresolved (UNCED, 1991). The Brundtland commission was organized by UN secretary General at times in 1983 in order to solve challenges facing sustainable development efforts with the intention to unite nations towards the sustainability aspirations. The document prepared by the commission in 1987 entitled “our

common future" has popularized and defined the term sustainable development. A key element in the definition is the unity of environment and development. And defines the term as," Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987).

Since the Brundtland report the concept of sustainable development has developed beyond the initial intergenerational framework to focus more on the goal of "social inclusive and environmentally sustainable economic growth". In 1992 the world conference on environment and development published the earth charter, which outlines the building of a just, sustainable, and peaceful global society in the 21 century. The action plan agenda 21 identified information, integration, and participation as key building blocks to help countries achieve development that recognizes these important pillars. Under the United Nations charter the millennium declaration identified principles and treaties on sustainable development including sustainable development, social development and environmental protection.

One of the key defining features of sustainable development is the emphasis on the integration of the environmental objectives in to non-environmental policy sectors. This entails a fundamental recognition that the environmental sector alone will not be able to secure environmental objectives, and that each sector must therefore take on board environmental policy objectives, if these are to be achieved (laferty and hovden, 2002).

The integration of environmental concerns into other policy areas has been referred to as Environmental policy integration lenschow (1997, 1999), (laferty and hovden, 2002) (person 2004). EPI is a concept of much debate both in academic and policy making. But currently through many international conferences and agreement the concept has been popularized as a framework for integrating environmental concerns in to other policy sectors i.e. environment has to receive a principled priority over others for sustaining development for both current and future generations (lenschow, 2014).

Environmental problems are different to different levels of development. Basically in Ethiopia it is important to consider environmental problems as a problem of use and management of natural resources. In consideration of this Ethiopia has adopted many environmental agreements and the aspiration to make development sustainable is also constitutionally enshrined. Ethiopia's

Constitution incorporates a number of provisions relevant to the protection, sustainable use, and improvement of the country's environment. Article 44 guarantees "the right to a clean and healthy environment," while Article 43 pledges "the right . . . to sustainable development."[1]Additionally, Articles 89 and 92 require national policy and government activities to be compatible with environmental health. Article 89 further obliges the government to ensure sustainable development, work for the common benefit of the community, and promote the participation of the people, including women, in the creation of national development policies and programs. Moreover, according to Article 91, the government is duty-bound to protect and support cultures, traditions, natural endowments, and historical sites and objects[2].

Such provisions with corresponding regulations and proclamations have provided an enabling legal framework for EPI in Ethiopia. But mainstreaming environment with other sectoral and cross sectorla policies requires, among other things, integrated policy and implementation thereof. Starting from the national planning to implementing grass root level. The EPE has recognized the essentialities of mainstreaming environmental protection and management due to the natural resources base of the country. The argument here is therefore, if more than 80% of the population is natural resource dependent, and there is a rapid growth of population and the carrying capacity of Ethiopian environment is being debilitated, the growth and transformation aspiration must provide a principled priority to the environment. This study will mainly focus on exploring the subject by EPI framework.

1.2. Statement of the problem

Ethiopia had no environmental institutions or organizations to speak of until the 1990s. In Ethiopia, as in many other countries, awareness about environmental issues significantly increased in the 1990s. At that time, the main environmental issues were identified, some frame work environmental policies were drawn up, and administrative structures to implement these policies were established. Following the United Nations Conference on Environment and Development (UNCED), or the Earth Summit, which was held in Rio de Janeiro, Brazil, in June 1992, environmental issues gained considerable attention from the government of Ethiopia. To address environmental problems and move toward achieving sustainable development, the

[1]See the FDRE constitution
[2] See the FDRE constitution

mechanism of environmental protection adopted by Ethiopia was first marked by the incorporation of environmental issues into the 1995 Constitution of Ethiopia (GoE, 1995a). Constitutional provisions related to the environment are provided under Articles 43, 44, and 92 of the constitution (GoE, 1995a).

In the same year, EPA, which was responsible for the provision and enforcement of the country's environment laws, was established in response to the requirements of the Constitution. As one of its first responsibilities, and with a view toward further amplifying the constitutional provisions on environmental protection, the Environmental Policy of Ethiopia (EPE) was approved in 1997 (EPA, 1997).

The Environmental Policy of Ethiopia (EPE) is a framework that requires the formulation and implementation of laws, standards, and guidelines as well as institutional arrangement.

Environmental problems are different to different levels of development. In the least advanced countries and regions, environmental problems are essentially due directly to the use and management of natural resources. For middle income countries undergoing rapid urbanization, the chief environmental problem is the reliance on technical models that consume comparatively large amounts of natural resources compared with recently developed technologies in use at the international level. In industrialized countries the central question is the impact of economic growth, prevailing technical models, and predominant life styles on the management of natural resources and common spaces (Benatenuo. A, 1992)

Environmental resources are the foundation for social and economic development in Ethiopia. They are the source of the goods and services needed for such development and economic growth (EPA, 2008). The productivity and sustainability of natural capital is heavily dependent on the way that humans manage their asset, and this in turn can affect the availability, stocks and functioning of remaining assets. But mismanagement of natural resources coupled with their underutilization has so far undermined their contribution to the country’s overall development. *ibid*

Political, social, and economic challenges can both contribute to and be exacerbated by environmental degradation. Much of Ethiopia’s population is dependent upon on the environment as their principal source of income (HoAREC, 2011; US DOS, 2011; McKee, 2007;

EPE, 1997). This leads to a cycle of environmental degradation and poverty: to survive, people "are forced to disregard the long-term well-being of the environment and thus degrade it further" (MoFED, 2002, p. 121). Recurrent droughts, famines, poor infrastructure and periods of political unrest serve as additional challenges for environmental management within Ethiopia (Ogbaharya&Tecle, 2010; EPE, 1997).

On the contrary, environmental degradation in Ethiopia threatens physical and economic survival. It reduces the environment's ability to produce biomass for food, feed and household energy (Shibru, 2010). It undermines prospects for fighting poverty and achieving sustainable development. *ibid* In addition to the physical factors, social factors such as population, settlement and resultant need for services are also exerting a pressure on the environmental management and protection. Population is one of the driving forces for economic development and it is one of the influencing factors for the degradations of environmental assets. The population of Ethiopia is projected to be 129.05 million by the year 2030 according to CSA's medium variant projection[3]. In a developing country like Ethiopia the high rate of population growth might be taken as a single most important factor associated with social and economic development. The dissonance of the population growth with that of the economy, obviously, will endanger the livelihood of the people, aggravate environmental degradation and impede economic growth if careful planning and management for such is not in place.

In spite of the Ethiopian environment being at risk, if managed properly it has a potential for transforming the country. The diverse agro-ecological setting in the country offers ample opportunities to produce multiple high value crop products, which will have high demands at both domestic and international markets. Ethiopia also possesses unique ecosystem areas (national parks, wildlife reserves, wildlife sanctuaries and controlled hunting areas). Ethiopia also encompasses a broad range of ecosystems with greater varieties of habitats contributing for the occurrence of high faunal and floral diversity. South of the tropic of cancer almost 50 % of all land above 2,000 m and nearly 80% of all land above 3000 m lie with in Ethiopia.[4] This bio-diversity provides an important basis for economic growth and development in various ways such as agricultural led industrial development, rangeland that support commercial and

[3]CSA, medium Variant projection, 2009

[4] Ethiopian Environmental Outlook, UNEP and EFCC

subsistence farming, horticultural and agri-cultural industry based on indigenous species, fishing industry, and commercial and non-commercial applications of indigenous resources.

Constitutional provision and the approving of a relevant environmental policy, laws and regulations, standards as well as strategies are enabling legal basis for EPI. But has cannot guarantee effective implementation which requires a concerted effort and integrated implementation. The Conservation Strategy of Ethiopia (CSE) and the Environmental policy of Ethiopia (EPE) were adopted in 1997. Federal laws on environmental organs establishment, environmental pollution control, solid waste management, and environmental impact assessment (EIA) as well as effluent emission standards have been issued. In the course of one and half decades, the Government has ratified a number of international and regional multilateral environmental agreements (MEAs). They have been made part of the laws of the country. Moreover, a number of relevant environmental protection technical and procedural, general and sectoral guidelines have also been prepared.

Ethiopia, like many African countries, has endorsed the Millennium Development Goals. It has also elaborated a national development strategy which has passed through 3 stages of implementation, each of which has been for 5 years. These are Poverty Reduction Strategy Paper (PRSP) (2000/2001 to 2005/2006); Plan for Accelerated Sustainable Development to End Poverty (PASDEP) (2005/2006 to 2010/11), the current one called Growth and Transformation Plan (GTP) (2010/11 to 2014/15) and growth and transformation plan (GTP II) . Environmental sustainability has been given due attention in all the past development programmes and environmental goals have been set within the GTP and its offshoot, the Climate Resilient Green Economy (CRGE) vision and strategy. The CRGE vision is to see Ethiopia being carbon neutral and one of the middle income countries with GDP/capita/year of US$1170 by 2025.

Given the recognition for the protection and management of the environment by FDRE the implementation of the statement of intents recognized in policies and other legal documents are both ineffective and inefficient. Studies conducted over the area concluded that this is due to weak participation of the community and CSOs (Melese, 2009; Tsegaye, 2014, Tesfanesh, 2014), lack of adequate fund (EFCC, 2006; UNEP, 2006; ICNL, 2011) lack of technical and informational capability (, the emphasis on short term gains than long term maintenance (UNEP, 2006), conflict in prioritizing economic growth and environmental protection (McKee, 2011),

lack of effective monitoring and evaluation (Melese, 2011) and in general weak institutional planning and integration has contributed for fragmentation of Environmental protection. Apart from these issues this study assumes as these things sprung from weak environmental integration which largely is focuses on Horizontal sectoral integration between line ministries and vertical integration in cascading enforcement tools.

1.3. Research questions

1.4. Objectives of the study

The general objective of the study is to discuss the challenges and prospects for environmental policy integration in Ethiopia. It will further discusses the global sustainability discourse and the conceptualization of sustainable development, since it is important to identify the normative framework for the aspiration of sustainable development which currently is being considered a mechanism of introducing a significant number of the world poor to some degree of modernization.

1.4.1. Specific objectives

- Discussing state and trend of Ethiopian environment
- Discussing enabling legal frameworks for environmental protection and natural conservation in Ethiopia
- Identifying possible factors that hinder integration of environmental, social and economic issues for sustainable development in Ethiopia
- Identify environmental policy integration efforts in Ethiopia
- Identifying issues that are integrated with in the Ethiopian environmental policy

1.5. Significance of the study

Sustainable development is now the governing concept for all economic, social and environmental activities that are undergoing in the world. The concept is contested in diverse forms, from ecological viewpoints as lacking significant for ecological protection rather than

ensuring continuing growth as the expense of the latter, while economically, it is perceived both as a potential for new ventures and a hindrance for an already established and unsustainable undertakings, while socially some condemns the concept as can enhance income and wealth inequality since it advocates for change of mode of production which can result in, as some argue, technology robbing humans jobs. But it is widely accepted that the current practices of development are largely unsustainable and adapting to some degree of modernization is required if nature has to be preserved and at the same time ensuring its sustainability. Due to these conditions it is significant to study the concept and its implementation in Ethiopia. Since sustainable development has wide range of applications this study particularly confines its domain on Environment and specifically on policy aspect of the environment. Here in uncovering the challenges horizontal and vertical policy integration frameworks are adopted. While in portraying the prospects for EPI, enabling legal basis which largely referred to as, communicative instruments in EPI literature, are discussed. In doing so, environmental issues necessitating EPI and their links to the Economy is discussed. Due to these, the study has some contribution to the body of EPI literature in particular and the body of sustainable development literature in general. Which largely is confined in the industrial democracies of the west, and can potentially pinpoint integration undertakings and the challenges militating against their success and contributing to policy makers and finally it serve as a requirement for masters of Arts degree in public administration and development management.

1.6. Scope and Limitation of the study

Environmental policy integration is a wire ranging concept as a mechanism for implementing sustainable development aspirations. The concept sustainable development as discussed above and in the literature review section is hard to conceive and systematically frame in a way conceivable for researching at this level. First due to Agenda 21 and 2030 sustainable development agenda the concept has a wide spread political backing both locally and internationally making the adaptability of the concept more spacious and its degree of ambiguity high.

This study cannot address the whole concept what EPI should and could be. Due to first lack of bold recognition of the concept as an organizing principle, lack of resources and capability of addressing wide range of issues related to the study of EPI. So therefore it is found first essential

to confine the subject by focusing on portraying the existence of enabling legal conditions for EPI, issues driving the need for the environment to receive a principled priority in Ethiopia, and what challenges in general are there handicapping the integration of environment in to other sectoral and cross sectral policy areas. In order to grasp this it was essential for the inclusion of primary data for studying the degree of EPI in Ethiopia but due to reasons mentioned above and the time limitations here from the study is confined only in defining the concept not addressing or identifying the symptoms.

Chapter 2

2. Literature review

2.1. The concept of sustainable development

Concern about sustainability can be traced back to Malthus (1766–1834) and William Stanley Jevons (1835–82) and other eighteenth- and nineteenth-century thinkers who were worried about resource scarcity, especially in the face of population rise (Malthus) and energy (coal) shortages (Jevons). The issue was raised in the 1950s in the writings of Fairfield Osborn (1953) and Samuel Ordway (1953). It was not until the 1960s and the 1970s, however, that a significant segment of public opinion expressed such unease. These decades were marked by the intensification of anxiety about the environment, particularly the health hazards caused by industrial pollution. This led, in turn, to environmental critiques of conventional, growth-orientated, economic development. Initially, this concern led to calls, in some quarters, for zero-growth strategies, especially following the publication of the 1972 Club of Rome report, The Limits to Growth (Meadows et al. 1972). The report, undertaken by a group of young scientists from the Massachusetts Institute of Technology, concluded that, if present trends in population growth, food production, resource use and pollution continued, the carrying capacity of the planet would be exceeded within the next 100 years. The result would be ecosystem collapse, famine and war. The 'limits to growth' argument was also taken up by Herman Daly, who built his 'steady state economics' on the recognition of the absolute limits to economic growth (Daly 1977). However, the 'limits to growth' argument was subject to much criticism. It concentrated only on the physical limits to growth, ignoring the possibility of technological innovations leading to new ways of, for example, addressing pollution or using resources more efficiently in production. It was also seen to present an overly pessimistic view of the rate of resource depletion on a global scale. The argument was displaced by a new belief that environmental protection and economic development could become mutually compatible, not conflicting, objectives of policy. However, this did not necessarily undermine the 'limits to growth' argument, but rather it modified its focus, pointing to the need to limit growth in some areas, to allow for necessary growth in others. This presents the enormous challenge of sorting out when and what type of growth is, or is not, acceptable (Paehlke 2001).

The term ‘sustainable development’ came into the public arena in 1980 when the International Union for the Conservation of Nature and Natural Resources presented the World Conservation Strategy (IUCN 1980). It aimed at achieving sustainable development through the conservation of living resources. However, its focus was rather limited, primarily addressing ecological sustainability, as opposed to linking sustainability to wider social and economic issues.

2.2. Clarifying the terms use

The term ‘sustainability’ originally belongs to ecology and is referred to as the potential of an eco-system to subsist over time (Reboratti, 1999). By adding the notion of development to the notion of sustainability, the focus of analysis shifted from that of ecology to that of society. The chief focus of sustainable development is on society, and its aim is to include environmental considerations in the steering of societal change, especially through changes to the way in which the economy functions.

Promoting sustainable development is about steering societal change at interface between:

- *The social*: this relates to human mores and values, relationships and institutions
- *The economic*: this concerns the allocation and distribution of scarce resources
- *The ecological*: this involves the contribution of both the economic and the social and their effect on the environment and its resources. These are the three pillars of sustainable development (Ekins 2000)

Sustainable development is a dynamic concept. It is not about society reaching an end state, nor is it about establishing static structures or about identifying fixed qualities of social, economic or political life. It is better to speak about promoting not achieving, sustainable development (Susan, 2006)

key terms in the current discourse of sustainable development

- ***Sustainable yield***: maintaining the regenerative capacity of natural systems- for example forests
- ***Environmental sustainability***: preservation of natural environmental systems and processes, or addressing environmental issues to maintain social institutions and processes
- ***Sustainable society***: living within boundaries established by ecological limits, but linked with ideas of social equity and justice
- ***Sustainable development***: maintaining a positive process of social change.

Source: cited in Susan (2006) Meadowcroft (1999)

2.3. Sustainable development as a political concept

The proliferation in the meanings of and in the application of the term 'sustainable development' does not necessarily undermine its usefulness. Rather, it reflects the complexity of issues that are invoked when development and environment are juxtaposed (Meadowcroft 1999). As Donella Meadows, one of the authors of ***The Limits to Growth*** has argued when discussing some of the linguistic confusion surrounding the use of the word: 'we are struggling for the language now for a whole set of concepts that are urgent in our conversation . . . It's a mess. But social transformations are messy' (quoted in Dresner 2002: 66). The lack of clarity has also been politically advantageous, because it has allowed groups with different and often conflicting interests to reach some common ground upon which concrete policies can be developed. More important, the search for a unitary and precise meaning of sustainable development may well rest on a mistaken view of the nature and function of political concepts (Lafferty 1995). As many commentators have argued, sustainable development is best seen as similar to concepts such as 'democracy', 'liberty' and 'social justice' (O'Riordan 1985; Jacobs 1995; Lafferty 1995). For concepts such as these, there is both a readily understood 'first level meaning' and general political acceptance, but around a given set of core ideas lies a deeper contestation. This makes sustainable development an essentially contested concept (Lafferty 1995). In liberal democracies the debates around these contested concepts form an essential component of the political struggle over the direction of social and economic development – that is, of change (Lafferty 1995). Substantive political arguments are part of the dynamics of democratic politics and the process of conscious steering of societal change. Such arguments are important as they can stimulate creative thinking and practice. One topic on which such creative thinking has occurred is in relation to the idea of 'development'.

2.4. The ladder of sustainable development

The diversity of policy options associated with sustainable development can best be seen in terms of a ladder (Table 2.1), originally developed by Baker et al. (1997). The ladder offers a

useful heuristic device for understanding the variety of policy imperatives that are associated with different approaches to the promotion of sustainable development. These approaches can be adopted by governments, by organizations or by individual Green thinkers or activists.

Each column in Table 2.1 focuses on a different aspect of sustainable development. Reading across the ladder identifies the political scenarios and policy implications associated with each rung. The ladder also tracks the connection between these positions and particular philosophical beliefs about nature and about the relationship between human beings and the natural world. It helps put flesh on the environmental ethics that underpin practical sustainable development action.

2.5. The Philosophical Underpinning

The varieties of approaches to sustainable development are an indication of differing beliefs about the natural world held in different societies, cultures and historical settings and at the individual level. The values that are attributed to nature range across a broad spectrum, from an 'anthropocentric' to an 'ecocentric' position. At the extreme end of the anthropocentric view, the wealth of nature is seen only in relation to what it can provide for the service of humankind (O'Riordan 1981). In contrast, ecocentrics hold the view that nature has intrinsic value. It is aimed at creating a partnership, based on reciprocity, between human beings and nature.

These two different perspectives have important implications for the design and implementation of policies. The ecocentric approach focuses on the community level and espouses small-scale, locally based technology. The objective is to maintain social and communal well-being and not merely the harmonious use of natural resources (Baker et al. 1997). In contrast, the anthropocentric approach can be distinguished by its optimism over the successful manipulation of nature and her resources in the interests and to the benefit of humankind. An extreme example of the anthropocentric approach can be found in the US Wise Use Movement, a coalition of ultra-conservative politicians, interest groups, scientific institutions and consumers, which promote economic growth and rejects the need to consider the environment in economic development. When speaking about sustainable development, making too sharp a distinction between the anthropocentric and ecocentric positions on nature is not wise, however. This is because the main motivation behind any conception or theory of sustainable development is

human interest in human welfare (Dobson 1998). This is certainly true of the Brundtland formulation. With its emphasis on human needs, promoting sustainable development is, in this formulation, a way in which to ensure that development (a human activity) is sustainable over time. While this may involve the protection of the natural resource base, the rationale for this protection is essentially a human-centric one: it is protected because it is necessary for our well-being. Nevertheless, ranging attitudes towards nature along a continuum from anthropocentric to eco-centric is useful. At one extreme, nature is seen only in relation to its use to human beings. Moving along the continuum, sustainable development becomes a challenge to devise a more environmentally friendly approach to planning and resource management. Moving further along, nature is allowed to set the parameters of economic behavior, so that sustainable development becomes an 'externally guided' development model. Reaching the other extreme, so deep is the Green philosophy that sustainable development is viewed as managerial interference with nature and her natural cycles.

2.6. Defining policy and integration

2.6.1. 'Policy' and 'integration': basic definitions

According to the dictionary, the term 'integrate' can have either of the following meanings: "to form, coordinate, or blend into a functioning or unified whole; to unite with something else; to incorporate into a larger unit". From these definitions one can conclude that an integration process can occur with different degrees of order and purposiveness, either through coordination according to a predefined set of rules or through random blending. Secondly, the definitions leave open the question of hierarchy and priority among the parts to be integrated. Hence, integration can occur with no priority (in effect, equal priority) of different parts or with differentiated priority. Thirdly, the definitions suggest that integration can mean both unifying several parts into a (new) whole and incorporating one part into a larger (existing) unit.

Turning to the object to integrate in this context, 'policy', this term too is characterized by an imprecise definition and multiple uses. Hogwood and Gunn (1984:13-19) have found ten different contemporary uses of the term: as a label for a field of activity; as an expression of general purpose or desired state of affairs; as specific proposals; as decisions of government; as formal authorization; as a programme; as output; as outcome; as a theory or model; and as a

process. Policies can also be by products of other actions, for example energy policy is often highly influenced by what is labeled as industrial or social policy (Collier, 1994).

Already this basic definition of integration suggests that; first, priority, or weighting, is a key element, and second, the term is imprecise enough to accommodate a wide range of interpretations with regards to weighting. It is also clear that the conceptual clarification of EPI is further challenged by the inherent ambiguity of the term policy, i.e. the 'slippery' object to integrate.

2.7. Integration imperative; environment, sustainability and climate change

It is common in many discussions of EPI to begin with a discussion on the meaning of integration. The semantics of 'integration' in common parlance imply 'unity, balance, coherence, stability, order, consensus, absence of conflict and contradictions' (Bornemann, 2008, p. 2). Bornemann contends that by corollary, considerations of opposing concepts like 'differentiation, disintegration, fragmentation, segregation, assimilation, cooperation, conflict', bring the problem of integration into sharp relief. In this respect, he references some of the central building blocks of the sustainability transitions literature (Avelino & Rotmans, 2009) that the crisis of contemporary society opens up opportunities (indeed imperatives) for recalibrating systems of governance in the 21st Century. Rather than event driven, episodic 'shocks' (flood, storms, drought, *etc*.) to the system (Hernes, 2012), there is a growing sense that contemporary crises are systemic, epochal and potentially catastrophic (Bauman, 2010; Caraça, 2012; Raskin,2009). Caraça, in the book 'Aftermath' places our contemporary challenges within the widercontext of a crisis of modernity, whereas Baumann and Raskin characterize the nature of such acrisis as an 'interregnum' where change is taking place but the contours of a new socio-politicalorder are not yet fully formed. The need for integration can be seen as a result of transformations in the social order in which governance is not just an action of specified social groups, such as the state, but is flexible and open to wider groups of social networks and institutions (Simeonova& Van der Valk, 2009, p. 245). Lafferty (2012b) meanwhile places the challenges facing EPI firmly within the context of a 'dysfunctional democracy' with respect to sustainable development. Integration in such a context is not a one off event, but is a reflexive, adaptive, recursive process. The creation of a 'new' paradigm, programme, policy, plan, process or practice does not 'fix' the problem but is part of a complex set of interactions, feedbacks, contingencies, uncertainties and

ambiguities that require acknowledgement and attention. The substantive context in which the word integration is used matters (Derkzen, Bock, &Wiskerke,2009, p. 144); it is also normatively loaded with connotations of 'rationality and impartiality', which are highly contested. Pohl (2014) suggests that a set of heuristic questions can begin to focus our attention on the issue of integration.

1. What is integration aiming to achieve and who is intended to benefit?
2. What is being integrated?
3. Who is doing the integration?
4. How is the integration being undertaken?
5. What is the context for integration?
6. What is the outcome of the integration?

Pohl goes on to point out that the means of integration can be diverse, including the development of mutual understanding, theoretical concepts, models, common metrics, visions or products (*ibid*).In an important intervention into clarifying the meaning of 'integration' Scrase and Sheate (2002,p. 288) list at least 14 different connotations of 'integration'. These include: integrated information resources; integration of environmental policy concerns into governance; vertically integrated planning and management; integration across environmental media (land, air, water),integrated (regional) environmental management; integrated environmental management(production); integration of business concerns into governance; the environment, economy andsociety; integration across policy domains; integrated economic modeling; integration of stakeholders into governance, integration among assessment tools; integration of equity concerns into governance; integration of assessment into governance. Scrase and Sheate(2002, p. 275) acknowledge that the focus on 'adjusting existing policies to the design, selection and implementation of new policies and ultimately to changing the central goals and sets of values informing problem definitions and policy direction' can potentially contribute to a paradigm shift.

The second is the idea of interconnection manifested in the use of *systems* based approaches in engineering ecology and economics. This commonality is tempered by the gap between stated intentions and actions. The belief that 'better informed and more open decision-making processes will lead to more rational and better decisions, and the stated intention to make

changes that will promote transitions towards sustainable development' does not readily or necessary translate into action. The diversity of meanings reflects disagreements over about what is undesirable or unsustainable and contains potential and real conflicts. As Jordan and Lenschow (2008b, p. 332) conclude there is perhaps some irony in the lack of coordination of various policy instruments. Turnpenny*et al.* (2008, pp. 762–3) provide a synthesis of the key dimensions of integration together with questions that need to be considered which we can adapt for our purposes here. The first dimension is *paradigm* relating to the overarching principles *e.g.,* sustainable development or economic growth that guides the framing of problems and solutions. The second dimension is *scope* concerning the range of impacts under consideration *e.g.*, environmental, social, economic, *etc*. The third dimension is *goals* concerning integration early in decision-making processes. The fourth dimension *process* highlights the stage and processes of integration in the policy cycle. The fifth dimension *stakeholders*, denotes the capacity to engage with multiple stakeholders to address, conflicts, identify inconsistencies and integration adversity of perspectives. The sixth dimension *trade-offs*, refers to a systematic and deliberate capacity to identify trade-offs between goals, objectives, *etc*. The seventh dimension is *learning*: do systems have the capacity for learning in the short and long term? The final dimension is *evidence*: what constitutes evidence and what is the capacity to integrate different types of evidence into decision making. The concept of integration is not monolithic: one dimension maybe more developed than in others, and integration in practice in one dimension does not necessarily lead to integration in others (Turnpenny et al., 2008, p. 770).

While we might classify the approaches of Scrase and Sheate and Turnpenny*et al*. respectively, as more empirical/descriptive and analytic, Steurer (2009, p. 5) provides a more normative model connected to governance for sustainable development. Steurer lists five normative governance principles: horizontal policy integration; vertical policy integration; stakeholder integration (participation); knowledge integration (reflexivity); temporal integration (intergenerational equity). This study particularly will focus on the normative dimension of environmental policy integration in Ethiopia.

2.8. Sustainable Development and Integration

Bornemann (2008) seeks to locate the impetus for the integration imperative within the concept of sustainable development itself. He characterizes sustainable development as a process of

discursive integration bringing together previously separated discourses of environment and development in a process of political negotiation and compromise through the World Commission on Environment and Development. Drawing on the work of Hajer, he points out that sustainable development 'functions as an integrative discourse that transcends and reframes established differences and conflicts in addition to creating new discourse coalitions' (*ibid*., p. 7).

Among the many injunctions for integration in the discourse of sustainable development the WCED (1987, p. 310) pointed out that 'the real world of interlocked economic and ecological systems will not change; the policies and institutions concerned must'. Therefore, sustainable development is not simply concerned with 'what to do', but also with governance issues of 'how to do it' (Steurer, 2009, p. 1).

Looking beyond the normative and political dimensions of sustainable development it is often forgotten that the Brundtland definition was not simply the expression of a desirable state of the world but a programmed linking of problem analysis and problem solving. In this respect Bornemann's impulse is shared by Jordan and Lenshow (2008b) who focus on 'integrating the environment for sustainability' and indeed an early formulation by Lafferty (2002). Lafferty (2002, p. 9) points out that 'one of the disadvantages of the term EPI is that it may be taken to signify an environmental policy objective that is much more limited than the broader agenda for sustainable development', however EPI is used as an operational shorthand for the environmental or ecological core of the sustainable development agenda'. The idea of sustainable development is (1) made necessary by recursive problems of modernity, (2) embodies a reflective critique of environmentally destructive and socially inequitable character of the current development pathway, and (3) requires an institutionalization of reflexive practices in order to orient change towards a more sustainable social trajectory (Meadowcroft & Steurer, 2013, p. 7) (Jordan &Lenschow, 2008b). EPI is not a concept that simply has to be translated into the transitions debate; rather it is integral to any discussion of sustainability transitions.

Turnpenny*et al.* (2008, p. 761) summarize integration as spanning topics: 'as varied as the integration of policy (social, economic, environmental), enhancing institutions for management and crossing sectoral barriers, vertical integration between tiers of government, integrating many stakeholder perspectives and conflicting interests, managing knowledge and handling complexity and the diversity of science (interdisciplinary), institutional change, and setting out clear

overarching and political goals'. The integration imperative poses the challenge of developing integrative capacity transcending the spaces of academic information and knowledge production and political spaces of decision (Dovers, 2005, pp. 3–4). Turning to the specific question of Environmental Policy Integration, it is useful to begin by briefly considering 'environmental integration', 'policy integration' and 'sectoral integration'.

Table 2.1 Four integrative governance challenges for sustainable development

Aspects of integration	Elements to integrate	SD governance principles
Policy sectors	Economic, social and environmental policies	Cross- sectoral (horizontal) integration EPI
Space	Local, national and supra-national levels of policy making	Cross-jurisdictional (vertical) integration
Societal sectors	State civil society; (hierarchies and networks)	Participation
Time	Short and long term temporal scopes	Intergenerational equity

Source: Adopted from Middelton and P. Okeefe, 2005

2.9. Disaggregating EPI: environment, policy and sector

2.9.1. Environmental integration

Buhrs (2009, p.1) defines environmental policy 'integration as the integration of environmental considerations in to all areas of human thinking, behavior and practices that (potentially) affect the environment. Environmental integration implies adapting knowledge base (cognitive frameworks), actions (policies) and human systems (institutions) on the bases of collectively decided parameters (imperatives), so that they become 'environmentally rational'. In practice

environmental integration is about enhancing the integration of environmental knowledge, values and interests in human thinking decisions and actions, as well as promoting the consistency between environmental management efforts by a variety of ways and means (ibid, p.11). In this view sustainable development merges as a cognitive framework for integration, but not only contender e.g., environmental policy, ecological communalism, ecological modernization (Lafferty, 2002).

While person argues that EPI is a 'first order operational principal to implement and institutionalize sustainable development' and that sustainable development is an overarching goal rather than a coherent policy objective to be integrated (person, 2007). Arguably: 'with the turn towards sustainability, environmental policy was to be brought out of itself (Meadowcroft, Langhalle, and Ruud, 2012). Rather than constituting a specialized ghetto it was to become a critical dimension of mainstream economic and political decision making (ibid).

Jodan and Lenschow (2008) identify institutions, politics and polity as key elements underpinning the dynamics of successful EPI. Institutions here denote the structural features of the political context and the cognitive predispositions of the social, legal and administrative traditions of a polity (ibid). From an institutional perspective EPI is a multi-sectoral, multi-level coordination challenge. Form a political perspective the focus is on the degree of sectoral autonomy and responsibility (of ministries or department) and the political composition of governments at a given point in time. From a cognitive perspective 'the frame of reference' or dominant set of ideas is important. Jordan and Lenschow linked the cognitive dimension to a number of factors, including national predilection is in policy making consensual versus legalistic) and sectoral world views that underpin the cultures of functional departments (energy, agriculture, transport etc). The cognitive perspective has tended to stress the importance of non-state actors and circumstances external to policy process (ibid. p.152). Environmental integration is likely to be most effective if it occurs in mutually supportive ways across the cognitive, policy and institutional dimensions. For example cognitive integration without policy and institutional integration is likely to be limited in impact in contrast institutional integration that gives expression to integrative ideas like sustainability will remain symbolic without environmental policy integration ideas like sustainability will remain symbolic without environmental policy integration (Buhrs, 2009 p.20). Policy and institutional integration is the subject which will be

covered over the course of the study of this paper; the cognitive and the political perspective will be discussed in forming a conceptual synthesis for the analysis of policy and institutional context.

Though out the literature three broad categories of instruments have been reviewed i.e. communicative instruments (constitutional provisions, national environmental plans, national sustainable development strategies) set out visions and long-term objectives to guide more specific reforms. Organizational instruments (green cabinets, interdepartmental work groups, task forces, liaison offices environmental units in sectoral ministries, cross sectoral team) seek to alter the patterned context in which policy decisions are made i.e. the rules and frameworks. Procedural instruments seek to intervene directly to alter the decision of decision making to support EPI green budgeting, SEA, Policy appraisal).

2.9.2. Disaggregating policy integration

Bomeman (2008, p.28) suggests that policy making can be framed and understood in at least two ways. The first is a rational problem solving activity referring to substantive, real world problems that can be analyzed and solved. The second takes an interaction oriented perspective where the focus is on the social processes between actors with different problem perception, normative and causal beliefs. In the case of the former complexity and uncertainty give rise to problems, in the case of the latter the challenge that arises in the ambiguity of the problems, in the case of the latter the challenge that arises is the ambiguity of problem perceptions and the ambivalence of values and goals with respect to sustainable development. This poses significant challenges for policy integration: complexity requires analytic integration; uncertainty gives rise to calls for knowledge integration; ambiguity requires conceptual integration; ambivalence calls for normative integration.

Jansens and van Tatenhove (2000, p.155) argue that integration and fragmentation are two sides of the same coin. The problem of fragmentation is linked to a common feature of contemporary, functionally differentiated governance organized in sectoral ministries and increasingly in decentralized agencies (Jordan &Lenschow, 2010). Hogl and Nordbeck (2012, p.118): “from an institutional perspective EPI encounters the problem of determining suitable organizational and

procedural design for policy coordination and integration horizontally and vertically fragmented systems of governance'.

The mainstream interpretation of policy integration is rooted in the notion of a comprehensive rational policy making process seeking to dissolve contradictions, reduce redundancy and exploit the synergies between policies (Bornemann, 2008, p.14). This type of approach is rooted in a conventional understanding of policy analysis that viewed the political context as having three main elements: polity, knowledge and intervention (Hajer, 2003). In the case of the polity, it is associated with the nation state, and its stability derived from the interrelation between 'triangle of governance', the alignment of political-administrative institutions, societal processes and cultural adherences in a territorially defined social order (Hajer, 20003, p.128).

2.9.3. Connections between policy integration and EPI

Underdal (1980) set out criteria for policy integration in the context of marine policy. Person (2007) pints out that underdal's criteria of comprehensiveness, aggregation and consistency assume a rationalize understanding of the policy process wherein a policy can be seen as integrated when the consequences for that policy are recognized as decision premises, aggregated in an overall evaluation and incorporated at all policy levels and in to all government levels and government agencies involved in its execution (Underdal, 1980). Underdal sets three requirements to qualify as integration: inclusiveness with regard to time, space, actors, and issues at the input stage (comprehensiveness); the application of overarching criteria to evaluate effectiveness at the processing stage (aggregation); and the components of comprehensiveness policy being in accord with one another (consistency). Lafferty defines EPI as

- The incorporation of environmental objectives in to all stages of policy making in non environmental policy sectors, with a specific recognition of its role as a guiding principle for the planning and execution of policy;
- Accompanied by an attempt to aggregate presumed environmental consequences in an overall evaluation of policy, and a commitment to minimize contradictions between environmental and sectoral policies by giving principled priority to the former over the latter.

In addition Knudsen (2009, p.5) points out that priority does not necessarily imply that non-environmental policy concerns must invariably give way to environmental concerns. To qualify as EPI he forms;

- Different categories of environmental concerns can be affected by different policy decision e.g. climate change and biodiversity might create critical environmental parameters for renewable energy policy.
- The outcome of a trade-off between different or competing environmental concerns depends on the overall balance of the normative process applied, specifically how social and economic concerns are taken in to consideration.
- It will depend on whether decision makers take a medium or long term perspective and whether they perceive relevant changes within a local, national or global context (ibid).

Despite this application, Knudsen acknowledges that it does not resolve the question of how the principle can best be applied by government in practice. He therefore argues that it is 'analytically fruitful' to focus on two interactive dimensions of EPI: horizontal environmental policy integration [HEPI] (or cross sectoral horizontal dimension') and vertical environmental policy integration [VEPI] (the implementation of EPI within different sectors) (ibid, p.6). while there are definitely cross over's with the multi-level governance approach, Steurer (2009, p.7) notes that the proximity of the two dimensions of integration can lead to confusion and that a number of analysts see the vertical dimension as the degree to which sectors have 'greened' or merged environmental objectives with sectoral objectives as a decision making premise.

Following Stead and Meijers (2009, p. 324), we must acknowledge that EPI sets an extremely demanding standard for governance requiring: more interaction, accessibility, compatibility, and interdependence; more formal institutional arrangements requiring more resources, the negotiability of autonomy by stakeholders; and comprehensiveness in terms of time, spaces and actors. All of these considerations make EPI very challenging for the standard operational procedures of government and administration.

2.10. Sustainable development strategies and EPI

Pisano et.al (2013, p.6) argue that sustainable development strategies should ideally help to achieve 'better policy coordination and integration in several dimensions: horizontally (across

policy sectors); vertically (across political administrative levels as well as territorially, temporally (across time) and across societal sectors (public, private, academia, civil society) drawing on Meadowcroft, they argue that:

> 'Because sustainable development implies intergenerational time frames and a complete balancing of social objectives, the longer term and more comprehensive approach to planning embodied in national strategy processes is important. Strategies provide an opportunity to take stock and fix priorities. They provide an occasion to focus debate, build consensus, and examine trade-offs and make choices' (Meadowcroft cited in Pisano et al., 2013, p.6)

The most recent evaluation of sustainable development strategies (casado—Asensio&Steurer, 2014, p.445) is quite somber with respect to their impact and legacy:

1. Sustainable development strategies started out in innovative arrangements to govern sectoral interdependencies. To a certain extent, they went beyond being strategy documents by establishing innovative governance approaches.
2. The central role played by traditionally weak environmental ministries hindered cross-sectoral integration and vertical integration is an even bigger governance failure because in the cases where governments establish vertical coordination mechanisms the goals were either too broad or the institutions created often lacked a clear mandate.
3. Most sustainable development strategies lack political commitment and consequently have become administered processes incapable of shaping government agendas or major political decisions.
4. Among the enduring legacies of sustainable development strategies are processes of monitoring and evaluation of progress towards sustainable development. The use of indicator sets and reports have some drawbacks: (a) the tendency to focus on socio economic and environmental trends rather than actual implementation; (b) the reliance on often outdated data makes it difficult to revise policies in a timely manner; (c) the findings from monitoring and evaluation are used by administrators and researchers, but go largely unnoticed by politicians and the public.

2.11. Disaggregating sectoral integration

Janssens and Van Tatenhove (2000, pp.155-6) identify three main elements relevant to the challenges of integration under coordination. The firs, the integration of policy aspects, are synonymous with the integration of policy content and different types of policy and organizational instruments outlined in the previous discussion. The second element is the direction of integration wherein they distinguish between internal, eternal, horizontal, vertical integration and diagonal integration. The third element refers to stages of integration ranging from differentiation or degree of integration.

2.12. Internal and external integration

Internal integration, also referred to as intra-sectoral integration, is focused with in particular sectors agriculture, energy, transport, etc. and concerns he integration of different issues within the policy domains e.g. environment and agriculture or climate and energy. In the case of inter-sectoral policy integration we are referring to coordination and coherence across different sectoral policy domains.

2.13. Horizontal and vertical integration

Laferty (2012a, p.33) characterizes EPI as ‘a key governing instrument for achieving the de-coupling of existing policy drivers (economic and social concerns) from ecological degradation (environmental concerns). Decoupling signifies the necessary environmental protective measures should be pursued regardless of economic growth patterns and business cycles. The decoupling of non-sustainable patterns of social change necessarily implies a search for re-coupling for sustainable development. The idea of re-coupling resonates with a crucial premise of the Brundtland report which states that continued economic growth is necessary provided that the quality of growth changes (Knudsen, 2009, p.5). Lafferty et al. stress hat protecting the environment must be promoted in such a way as to trigger modified or even new value added activities and growth patterns, either through incremental change or radical discontinuous change.

Vertical environmental policy integration indicates the extent to which governmental sectors have taken on board and implemented environmental objectives as central in the portfolio of objectives the sector continually pursues (ibid). Lafferty (2012a, p.37) has specified an interdependent checklist of operational mechanisms related to the responsibility of ministries/departments:

- Scoping reports of sectoral activity identifying major environmental impacts associated with key actors and processes
- Sectoral forums for dialogue and consultation with relevant stakeholders and affected citizens
- Sectoral strategies for change with basic principles, goals, targets and time tables
- Sectoral action plans with specified initiatives for achieving goals with target group related policy instruments
- Green budgets for highlighting, prioritizing and carrying through action plans
- Monitoring programmes for evaluating implementations and revising strategies and action plans

Lafferty *et.al* (2004, p.16) argue that these steering mechanisms identify institutions and procedures deemed necessary to achieve a minimum of processual integration of environmental concerns in sectoral governance.

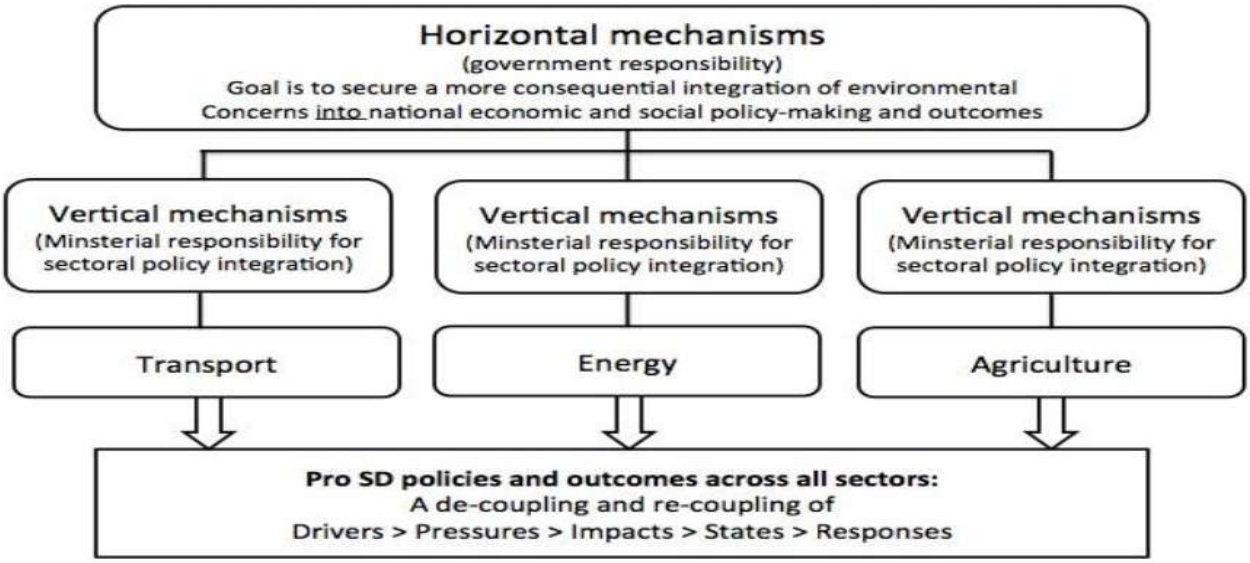
Horizontal environmental policy integration involves the question of integrating environmental concerns with in governments: i.e. across sectoral policy and responsibility. Lafferty proposes a list of benchmarks for HEPI.

- A constitutive mandate providing principles and procedures for reconciling conflicts and trade-offs related to de-coupling and environmental policy integration
- An overarching strategy for sustainable development goals and operational principles and a political mandate for implementation with direct backing from chief executive authority
- A national action plan with both overarching and sectoral targets indicators and time tables
- A responsible executive body with designated responsibility (and powers) for the overall coordination, implementation and supervision of integration process

- A communications plan stipulating sectoral responsibility for achieving overarching goals, outlining how cross-sectoral communications are to be structured and made transparent
- An independent auditor with responsibility for monitoring and assessing implementation at both government and sectoral levels and proposing revisions in subsequent generations for strategies and action plans
- A board of petition and redress for resolving conflict interest between environmental and other sectoral objectives

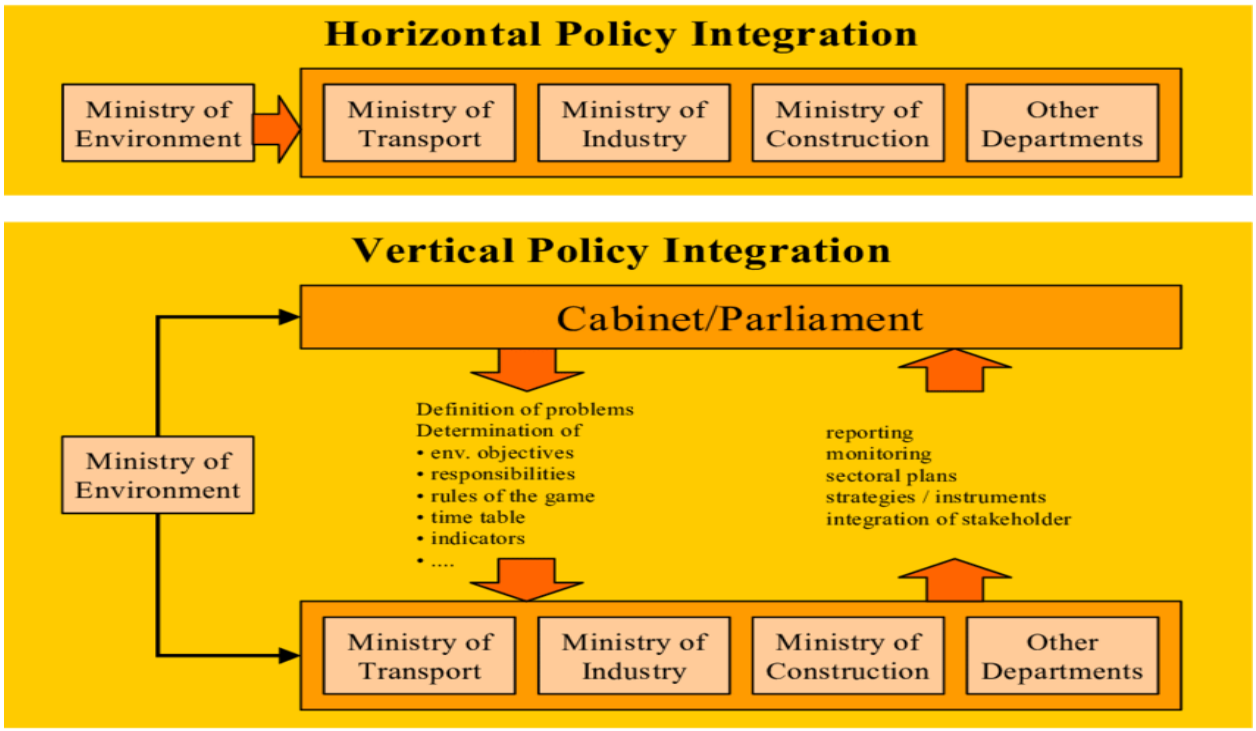
Lafferty *et.al* (2004,p.18) note that 'these benchmarks should be seen as indicating 'baseline' requirements for achieving and evaluating horizontal, cross sectoral integration of environment/ecological goals… each set of benchmarks is sequential as a rational implementation strategy and cumulative as to potential outcome.

Diagram 1: The horizontal and vertical dimensions of EPI



Source: Adopted from Mulaly and Dunphy, 2015

Diagram 2: flow chart for EPI



2.14. Diagonal integration

This categorization would be considered to be captured by VEPI dimension outlined by Laferty, or indeed redundant in light of the clearly stated intention that the implicit 'landscape' for the dimensions developed are governmental (Laffeety & Hovden, 2003, p. 12). Janssen and Van Tantenhove (2000, p.1665) use the concept of diagonal coordination to refer to 'co-ordination procedures that cut across existing statutory systems, in order to ensure close cooperation between departments and tiers of governance and if necessary private patterns in the planning and realization of complex and urgent strategic projects'.

Casado –Asansio & Steurer, 2012, p.5 argue that diagonal environmental integration can be thought of as an additional mechanism that takes account of both cross-scale interdependencies and cross sector linkages.

2.15. The relationship between EPI and climate policy integration (CPI)

For Runhar*et.al* (2014) climate policy integration is a 'specific form of EPI' or essentially 'the same idea'. Nilsson and Nilsson (2005, p.364), regard CPI as a subset of the much wider principle of environmental policy integration. Casado- Asansio and Steurer (2012, p.3) offer a comprehensive definition of CPI: as the development of set of tools to change the process of policy making;

1. Across policy sectors
2. Across levels of governance within the same policy field and/or
3. Across sectors and levels of governance at the same time, to ensure the climate mitigation and adaptation measures are taken in to account (weak interpretation) or even given principled priority (strong interpretation).

Adelle and Russel (2013, p.2) suggest that climate policy integration cannot simply be regarded as another take on integration problematique without further consideration.

Stead and Meijers (2009, p.329), using the lens of spatial planning, not that policy integration is relevant to both sustainable development and climate change agendas. They point out that 'mitigation of the effects of climate change will depend on the extent to which it is integrated in to decision making in other policy sectors, such as water and waste management, energy supply, transport and infrastructure. Since the impact of climate change may significantly alter land-use practices, spatial planning also has a significant potential role in developing adaptation strategies (ibid).

Chapter 3

3.1. Research methodology

The methodology used in this study is mainly case study method. Case study research refers to an in-depth, detailed study of, group, event or community. Case study method is known to be qualitative in nature, resulting in a narrative description of behavior or experience. It is not used to determine cause and effect, nor is it used to discover generalizable truths or make prediction. Rather, the emphasis is placed on exploration and description of a phenomenon. The main characteristics of this method which makes it very amenable for the conduct of this study is because it is narrowly focused, provides a high level of detail and is able to combine both objective and subjective data to achieve an in-depth understanding. Since EPI study is new and the understanding as such is lacking checking cause and effect will be a waste of time rather than describing the how and the why through descriptive method will enable us to shade light on the subject. Specifically cumulative method is used since it enables to pull together information for several event/situations and aggregate it in such a way that it allows for greater generalization. It has the advantage of saving time and money by not creating new and repetitive studies (Bernard, H.R., 2012).

Generally this method has the advantage of flexibility, for analyzing in-depth content and allows for the data to be collected in the natural setting and context.

3.2. Sources of data

Sources of data for the conduct of this study were both primary and secondary.

3.2.1. Primary source of data

Primary data was collected through interviews conducted face to face between interviewee and the interviewer.

Interview participants

Sections	Inclusion
- EFCC CRGE directorate	- CRGE mainstreaming expert - CRGE monitoring and evaluation expert
- EFCC EIA and SEA directorate	- EIA expert - Director of the directorate
- Environmental Policy, laws and regulations directorate	- Head of the directorate - Environmental policy analyst
- Ethiopian bi-diversity institute	- Bio-diversity mainstreaming expert

3.2.2. Secondary sources of data

Documents from Forest, environment and climate change commission, MOFED, National Planning commission, CSA, MoWIE, MOFED, WB, UNDP, UNEP, scholarly articles, journals, published and unpublished sources are utilized. And documents gathered form theses sources are analyzed using document analysis technique.

For document analysis the following documents were used

- Environmental policy, laws and regulations
- Sectoral action plans for EIA
- Directives and regulations with regard to EIA and Bio-diversity in particular and environment in general
- Annual reports of EFCC
- Annual reports of EIA implementing sectoral ministries
- Strategies and manuals of implementations of CRGE
- GTP implementation reports

3.3. Research methods

3.3.1. Qualitative aspect of the research methods

The purpose of qualitative approach in this proposed study was to gather the information that could not be obtained through the quantitative approach. Again it was to supplement the data obtained from the quantitative approach and show the perspective of participant's. Thus in depth interview were used to gather the appropriate information. The in-depth interview is a qualitative technique designed to elicit a vivid picture of the participant's perspective on the research topic. In depth interview is an effective qualitative method for getting people to talk about their personal feelings, opinions, and experiences. It is also an opportunity to gain insight into how people interpret and order the world (Milena, 2008). A qualitative research interview seeks to cover both a factual and a meaning level, though it is usually more difficult to interview on a meaning level (Kvale 1996). Interviews are particularly useful for getting the story behind a participant's experiences. Therefore it is better to use these in-depth interviews because they are investigative in nature and it offers a complete picture.

Also the purpose of this interview is to yield data quickly, in a wider variety and for immediate follow-up and clarification. Consequently, the researcher conducted in-depth interviews because of its flexibility, high response rate and also allowing new questions to be brought up during the interview. For qualitative aspects of data collection sample interviewees were determined based on their experience and relation to the issue under consideration thus key informant interview was used. In addition, the researcher tried to review the environmental practices and a summary of the main environmental laws/regulations in place or under consideration.

3.4. Methods of data analysis

Thus the qualitative data was analyzed using description because description involves a detailed rendering of information about people, places, or events in a setting. This analysis is useful in designing de tailed descriptions for case studies, e ethnographies, and narrative research projects (Creswell 2 009).

In addition to this document analysis is used in case studies Document analysis is efficient and effective way of gathering data because documents are manageable and practical resources.

Documents are common place which come in variety of forms, making documents a very accessible and reliable source of data. Obtaining and analyzing documents is far more cost efficient and time efficient than conducting your own research or experiments (Bowen, 2009). Also documents are stable, "non-reactive" data sources, meaning that they can be read and reviewed multiple times and remain unchanged by the researcher's influence or research process (Bowen, 2009, p.31). In addition documents can provide background information and broad coverage of data, and are therefore helpful in contextualizing one's research with in its subject or field (Bowen, 2009). Documents can also contain data that no longer can be observed, provide details that informants have forgotten, and can track change and development. While they also have disadvantages; some documents may only provide a small amount of useful data or sometimes none at all. Other documents may be incomplete, or their data may be in accurate or inconsistent. Sometimes there are gaps or sparseness of documents, leading to more searching or reliance on additional documents then planned (Bowen, 2009). Also, some documents may not be available or easily accessible. In order to avoid this evaluation of the quality of documents and document producing agencies underlying assumptions will be considered since organizations are a deliberate human effort to achieve their desired cause so therefore considering such is important in taking out organizational bias and inferring what is supposed to be somehow reliable.

But the issues surrounding the usage of documents are concerns and not disadvantages because they can easily be avoided by having a clear process that incorporates evaluative steps and measures (Bowen, 2009)

Chapter 4

4. Environment and development in Ethiopia

4.1. Sustainable development and livelihoods in Ethiopia

Development is a broad concept that has many compounds with it. Development is a change in society's economic, cultural, institutional and political life. A change in one aspect of these development ingredients also does not make any difference unless supported by the others. In its broadest sense development could be perceived as a process of improving the quality of life. The three equally important aspects of development are:

- Raising people's living standard; their income and consumption levels of food, medical services, education, etc. through relevant economic growth processes.
- Creating conditions conducive to the growth of peoples self-stream through the establishment of social, political and economic systems and institutions that promote human dignity and respect; and
- Increasing people's freedom by enlarging the range of their choice variables, as by increasing varieties of consumer goods and services. (Traders and Smith, 2003: 292)

4.2. Sustainability

The ultimate targets of every development endeavors shall be to bring about sustainability. Basically sustainability refers to meeting the needs of the present without compromising the needs of future generations. "(Traders and Smith, 2003, 464-465)

Livelihood comprises capabilities, assets and activities required for a means of living (Chamber and Conway 1988). A livelihood is sustainable when it can cope with and recover from the

stress and shocks and maintain or enhance its capacities and assets both now and in the future without undermining the natural resource base.

Realizing poverty eradication is, therefore, a mutually reinforcing imperative and has to be implemented in an integrated way in development initiatives. Such initiatives should be supported by information about the country's environment.

4.2.1. Environmental Sustainability

Environmental resources are the foundation for social and economic development in Ethiopia. They are the sources of the goods and services needed for such development and economic growth. The productivity and sustainability of natural capital is heavily dependent on the way that humans manage their asset, and this in turn can affect the availability , stocks, and functioning of the remaining assets; putting livelihood at risk. In Ethiopia, mismanagement of natural resources, coupled with their underutilization has so far undermined their contribution to the country's overall development.

On the contrary, Environmental degradation in Ethiopia threatens physical and economic survival. It reduces the environment's ability to produce biomass for food, feed and household energy. It undermines prospects for fighting poverty and achieving sustainable development. On the other hand, poor people are often blamed for environmental degradation. However, where poor communities are degrading the environment through unsustainable practices, it is often the case that they have been denied the opportunity to access goods and services that promote their use of resources in sustainable ways. Various economic, legal, ethnic, or other barriers have contributed to this end. Hence, removing barriers that contribute to the unsustainable development requires ensuring good governance and economic leadership.

4.2.2. Demographic Change

Population is one of the driving forces for economic development and it is one of the influencing factors for the degradations of environmental assets. As of 2006, Ethiopia's population is estimated to be about 75.07 million, of which the male and female population constitutes nearly equal proportion. Out of the total population 62.9 million is rural and 12.17 is urban. The country's total fertility rate (TFR) was estimated at 7.7 children per woman in 1984 and 6.74 in

1994 censuses and according to the 2000 Ethiopian Demographic and Health Survey (DHS), the TFR for the country was estimated at 5.9 children per woman.

The population of the country is expected to increase. According to the CSA's medium variant projection, the estimated population, which is 75.07 million in 2006, will increase to 83.48 million by 2010 and to 94.52 million by 2015, and adding another 35 million the total population will be 129.05 million by the year 2030. Currently Ethiopia is the second populous country in Africa.

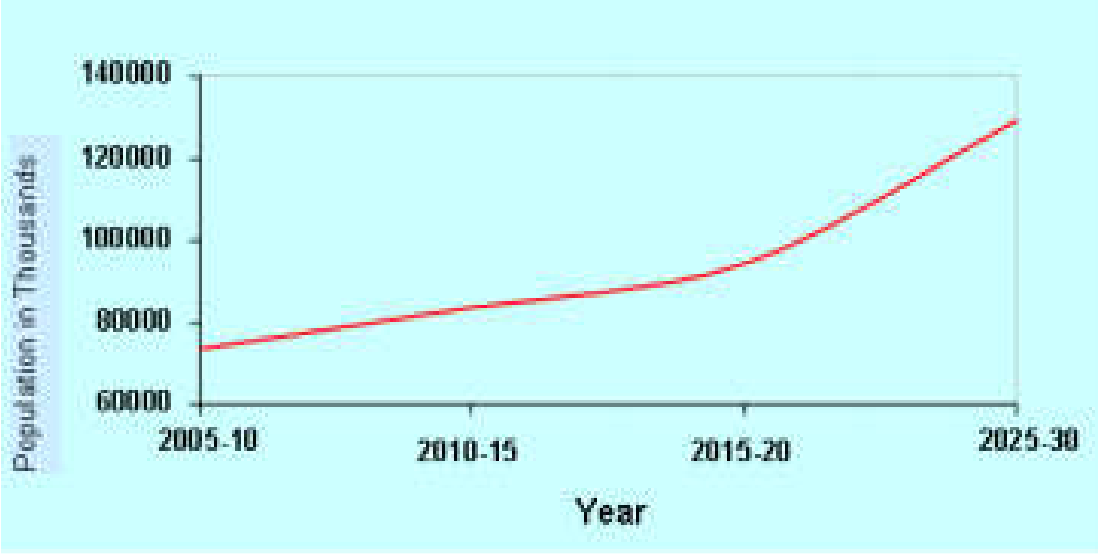
Whatever aggressive intervention programs materialized, because of the nature of the gradual effects of fertility and mortality on population growth, the endeavor to halt or reduce the growth will not be witnessed before a couple of decades to come (see Fig. 1.2). The composition of the age structure (45% of the population currently being under age 15, coupled with other socio economic proxy determinants such as prevailing low level of literacy, early marriage, lack of knowledge and use of contraceptives, low economy, religious devotion, cultural and ethnic setups, are the factors that play major role to make the population increase with unparalleled increment to the economy, for a couple of decades to come.

The increase in the rural population results in the increase of persons residing per hectare. The more dense a rural area becomes the less the share of households of cultivable and/or grazing land. In previous times farmers tried to fulfill the ever growing food demand by clearing new land for cultivation. In some parts of the highlands of the country this exercise is now coming to an end in a few years time, if not now. In fact it is evidenced that in the high-lands of Southern Ethiopia, average farmland per household has decreased to less than a quarter of a hectare.

Fig. 4.1 Population growth

Source: adopted from CSA, 1999

Fig. 4.2 projected population of Ethiopia



Source: adopted from CSA, 1999

The other feature of the population pressure in the rural areas of Ethiopia, where the economy highly depends on traditional farming, is degradation of cropland, which reduces productivity. In most places, due to the scarcity of fertile farmlands, farmers are now forced to plow ecologically vulnerable areas such as hillsides. Over farming and landlessness are also the consequences of

population pressure in Ethiopia. The total population living in urban areas of the country has also increased from 7.58 million in 1995 to 11.6 million in 2005 and is expected to increase to 17.48 million in 2015. Although the urbanization level of the country is very low compared to many African States (the level for sub- Saharan Africa is 26 percent), the growth of the urban centers of the country needs a serious planning for the future.

Population increase in most of the urban centers of Ethiopia is mostly due to rural to urban migration and migration from smaller towns to the relatively big once. Population increase of urban areas means overcrowding , increasing demand for jobs, growing demand for housing, and utilities such as electricity, fresh water, sanitation facilities (toilet, waste disposal services...etc.) Moreover, this increasing population should be matched with an equally high or even higher rate of economic development, and sustained economic growth, based on equity, enhancement of the livelihood of the poor, protection of the environment, and slower population growth.

4.3. Environmental issues

4.3.1. Soil erosion and land degradation

Land degradation may be defined as the loss of productive and ecosystem services provided by land resources. It is defined by the United Nations Convention to Combat Desertification(UNCCD) as the reduction or loss of the biological or economic productivity and complexity of pastoral, agricultural and wooded land due to soil erosion, soil impoverishment (such as nutrient depletion) and/or the loss of natural vegetation. Much of the world's land surface area is degraded, particularly in sub-Saharan Africa where it is critical to the livelihoods of poor farmers Nkonya et.al. (2008). Soil erosion and land degradation in Ethiopia – and their connections with agriculture – are a prominent environmental concern, as this is one of the most important causes of low and declining agricultural productivity, ongoing food insecurity and rural poverty in the country Gashaw eta al. (2014); MoARD (2010). Around 85 per cent of Ethiopia's populations rely heavily on subsistence agriculture for their livelihoods, and their activities contribute to the increasing degradation and vulnerability of soil resources Gebreyesus and Kirubel (2009).

Soil erosion occurs naturally due to processes of erosion by water and wind in the landscape, but it is increased by several orders of magnitude above background rates by human action. Land-

use change especially the removal of forest cover and riparian vegetation – exposes the underlying soil, which may then be rapidly removed by heavy rainfall, overland flow during flooding, or by the action of the wind. This runoff of topsoil has knock-on effects downstream as it leads to the siltation of watercourses and to ecological change in watercourses and wetland ecosystems. The use of intensive farming practices on cleared land, with inadequate soil conservation measures, also results in accelerated soil erosion. Moreover, once the topsoil has been lost to erosion, the remaining soil has a diminished capacity to store water, with the effect that subsequent rainfall runs off the land more rapidly, causing further erosion and potentially leading to more frequent and more severe flooding events. The removal of topsoil by accelerated erosion also alters the characteristics and structure of the remaining soil, leading to leaching of chemical species downwards through the soil profile and in some cases leaving impoverished, infertile soils that may also be more prone to water logging. A further issue is that cleared land is more prone to soil-water evaporation and upward transport of salts through the soil profile, leading to salinisation and the formation of infertile, blighted land. Soil biodiversity is reduced as a result of all of these processes, and the capacity for the remaining soil both to support vegetation cover and to regenerate declines.

Particular concern about environmental degradation in Ethiopia to date has therefore focused on the impacts of soil erosion due to agriculture – especially in the northern Ethiopian highlands, which were historically a naturally productive environment, but which have been heavily used for agriculture and are now heavily degraded Hurni et al. (2010). Since around half of Ethiopia's land area is mountainous and/or steeply-sloping, environmental issues typical of those occurring in highlands are a prominent feature of the Ethiopian context. In the northern Ethiopian highlands, unsustainable patterns of land use in a vulnerable, semi-arid mountainous environment that receives intensive rainfall have resulted in severe land degradation since around 1965 Franki et al. (2010). That land degradation has included the physical loss of soil due to erosion by water and wind (as evidenced by gully formation), as well as by the loss of soil fertility due to loss of soil nutrients (for instance, through runoff) and as soil structures and characteristics change (for instance, through leaching). Around 90 per cent of Ethiopia's arable land is found in the Ethiopian highlands – and around 90 per cent of the Ethiopian population and around 60 per cent of its livestock live in those areas – making them an important focus both for development and for environmental management. Whilst such upland areas are naturally

prone to relatively high rates of denudation due to their steep slopes and high rainfall rates, this natural vulnerability has been dramatically exacerbated by recent changes in land-use (especially deforestation to clear land for agriculture) and by more intensive livestock grazing and cultivation, including the cultivation of marginal, sloping land (which is inherently more prone to erosion). An increasing human population in the Ethiopian highlands, additional forest degradation due to firewood collection and commercial harvesting, and a relative lack of effective soil conservation practices in agriculture are other factors that have combined to exacerbate the problem of soil erosion and land degradation in these areas (Temesgen et al. 2014).

Therefore, in the Ethiopian highlands, the combined effects of population growth, intensive agricultural and pastoral use, cultivation of marginal land, commercial timber-cutting, precarious environmental conditions, and a relative lack of soil conservation practices, mean that land degradation has been particularly prolonged and severe. In the 1980s, for instance, the Food and Agriculture Organization of the United Nations (FAO) estimated that the average annual soil loss from agricultural land in the Ethiopian highlands was around 100 tons/hectare, and that around three-quarters of the land in the Ethiopian highlands was so degraded that its productive use was dependent on the use of soil conservation measures FAO (1986).

Studies have estimated that historical soil erosion rates on cultivated slopes in the (highland) Upper Kolla and WoinaDega Zones have been high, at around 4.3 mm/year, compared with lower rates of around 2.3 mm/year in the (lowland) Lower Kolla Zone (Gamachu 1988). Although scientific soil conservation practices have been promoted in Ethiopia since the 1970s, their uptake, implementation, coverage and effectiveness have been limited to date (Gashaw et al. 2014). Consequently, the loss of soil productivity has led to reduced farm income and to food insecurity, particularly among the rural poor, thereby perpetuating and worsening poverty (Shibru, 2010). Soil erosion and land degradation also exacerbate poverty indirectly, by increasing the labor required to forage for natural resources.

Overall, in Ethiopia, the loss of soil has dramatically reduced land productivity and biodiversity; and it has had knock-on effects for downstream water quality as sediment and nutrient run-off have led to siltation, sedimentation and eutrophication. Consequently, there have been losses of

the resources and ecosystem services on which many people's livelihoods depend, together with a reduction in the natural regenerative capacity of those resources.

4.3.2. Deforestation and soil degradation

Deforestation has also been a serious environmental issue in Ethiopia, and its effects persist today. Some historical reconstructions estimate that forest cover in Ethiopia has been reduced from around 40 per cent to around 3 per cent over the course of the last century (Berry, 2003); (Wassie et al. 2010).

The pattern of deforestation has been uneven; with some regions – particularly the Ethiopian highlands- being almost completely deforested (Eshetu, 2014). In the south central Rift Valley of Ethiopia, natural forest cover has declined dramatically from 16 percent in 1972 to 2.8 per cent in2000, corresponding to an annual forest loss of around 1,440 hectares in that area (Dessie and Kleman, 2007). A recent assessment suggests that Ethiopia's remaining cloud forests are being depleted at a rate of eight per cent per year (Reichhuber and Requate, 2012). Deforestation is closely linked to the issue of soil erosion and land degradation (see Section 3.1), but is an important environmental issue in its own right because it leads to the loss of important forest resources on which livelihoods may depend; it affects local microclimates (and even regional climates, in some cases); and it causes other environmental issues in turn, particularly biodiversity loss and soil erosion.

Deforestation is a major driver of soil erosion and land degradation, with potentially long-term consequences for land productivity, as it is unlikely that the soils lost as a result of deforestation will regenerate on the decadal timescale (Ramankutty et al., 2007). Forest clearance and forest degradation has occurred in Ethiopia for several reasons. Most significantly, forest clearance has been undertaken in order to open land for agriculture (including plantations) and grazing, partly driven by resettlement programmes during the 1980s (Kassie et al., 2014). In addition, harvesting for fuel wood and timber for commercial purposes, including supplying the construction industry, has led to the rapid depletion of forest resources. Such harvesting of forest resources may be informal, commercial or illegal, with both local use of wood products and export of timber to urban centers.

Deforestation and forest degradation are exacerbated by population growth and migration patterns (for instance, migration to the southwest of the country), which has increased demand for fuel wood, timber and other forest products. Deforestation is also exacerbated by soil erosion and grazing, which reduce the rate of forest regeneration. Soil erosion, in particular, leads to the removal of fertile topsoil, the reduction of soil water and groundwater storage capacity, and the exacerbation of flooding as runoff is concentrated spatially and temporally (Bishaw, 2001). Further issues related to deforestation and forest degradation include the loss of carbon sequestration capacity, with implications for climate change, and the loss of medicinal plants, with implications for future pharmaceutical use (Mesfin et al., 2009). Particular issues of forest degradation are associated with farmers' practices in the management of agricultural landscapes, as Gemechu et al. (2014) have shown for southwestern Ethiopia, where a forest-agriculture mosaic landscape is maintained by a `variety of practices by smallholder farmers: removal of trees from arable fields; planting of trees along field boundaries; conservation of trees in shade coffee fields; and planting of exotic trees. Other practices – such as the allocation of land to migrants along lands bordering forests, have also contributed to reduced forest area in the southwest of the country (Gemechu et al., 2014). El Ouaamari and Cochet have examined the role of coffee-oriented development policies in the agriculture of the southwest Ethiopian highlands, identifying some implications for the management of the forests in the area. They have shown that the recent development of very large private coffee estates, as well as coffee certification projects, have contributed to farmers' dispossession from critical forest resources essential to households' food security (Ouaamari and Cochet., 2014).

4.3.3. Water scarcity

Scarcity of water resources occurs as a result of the reduced availability of water, the over abstraction of water and/or the contamination of existing supplies. Again, the environmental issues are closely interrelated, with water availability or scarcity being related to hydrological patterns which have been altered – and in some cases highly disrupted – by changes in vegetation cover and soils (Gebrehiwot et al., 2014). Those patterns, of course, are mediated by a range of social and institutional factors. Locally, water availability and water resource security may require the use of appropriate water and soil conservation practices (such as constructing stone terraces on agricultural land), but although such techniques have been widely introduced over

several decades their sustained use has been less than had been hoped (Amsalu and de Graaff, 2008). Larger scale hydrology may be altered by hydroelectric power schemes such as the construction of the Grand Ethiopian Renaissance Dam on the Blue Nile River, which may alter patterns of water availability and security across the region (Rahman, 2013). Water scarcity in rural areas of Ethiopia takes two main forms: low coverage levels and poor water quality, and these have implications for human and animal health, for economic and social life, and for ecosystem functioning. As Bogale and Urgessa have acknowledged, in rural parts of Ethiopia many women and children still spend many hours a day collecting water, time that could be better spent in education or productive employment (Bogale and Urgessa, 2012). Some evidence suggests that water availability may be better in towns (such as Dukem) (Mohammed et al., 2013). However, recent research indicates that some initiatives designed to improve water scarcity micro-dams – may have had the effect of increasing disease prevalence in nearby villages (Amacher et al., 2004)

The Ethiopian government is attempting to increase electricity generation in the country significantly, mainly through the construction of dams; yet whilst dams may have economic benefits they can also alter the composition and density of disease vectors and intermediate host species, increase the incidence of malaria schistosomiasis (and possibly lymphatic filariasis), and cause eutrophication of reservoirs, soil erosion and earthquakes (Yewhalaw et al. 2014). There is also evidence that dams and commercial irrigation schemes can increase soil and water degradation, vulnerability to drought, and food insecurity in riverine and lacustrine areas downstream of dams, and dams in Ethiopia are also vulnerable to high soil erosion rates and earthquakes (Yewhalaw et al., 2014). These findings suggest that dam construction and water resource development programmes in Ethiopia require ongoing and in-depth research and planning together with detailed environmental monitoring.

Inadequate water supplies are also prominent issues in urban areas, although this may be more frequent due to contamination of supplies than to absolute shortage. The principal biological pathogens that are present in urban areas in Ethiopia are waterborne (such as the organisms responsible for causing cholera and dysentery) or are carried by insect/animal vectors that use sources of water as part of their lifecycles (causing malaria and dengue fever, for instance). The urban poor are vulnerable to these infectious diseases as informal settlements in and around

urban areas commonly lack adequate provision of potable water, sanitation, drainage and solid waste collection services and facilities (Smith, 2013). Adequate provision of infrastructure and services (whether public, private, NGO or community-based activity) is required to improve water security and to reduce the spread of infectious diseases in poor urban areas of Ethiopia.

4.3.4. Biodiversity loss

Biodiversity loss is another major environmental challenge in Ethiopia. Biodiversity is a critical – if sometimes overlooked – aspect of ecosystem services and biosphere integrity which underpins all aspects of economic, social, political and cultural life (Millennium eco-system assessment, 2015); (Reid and Swiderska, 2008). Biodiversity encompasses both wild and domesticated/crop species; the overall trends in biodiversity are of precipitous declines, particularly in tropical environments. Biodiversity loss is defined as a reduction in genetic, species and ecosystem diversity, and it is now occurring at an unprecedented rate. Biodiversity loss leads to depleted ecosystem services (such as provision of freshwater, food and fuel) and in turn affects human health, livelihoods, income and wellbeing (Roe et al., 2011); (Turner et al., 2012). Since the poorest people are frequently those most directly dependent on adequate local ecosystem services such as freshwater supplies, fuel wood provision and flood protection, there is a direct link between biodiversity loss and poverty, and poor people are disproportionately affected by biodiversity loss (Hains-Young and Potschin, 2008). Biodiversity loss occurs primarily through habitat degradation and destruction (such as deforestation) and through the spread of disease, but it also occurs through direct mortality to animal and plant populations (for instance, through hunting, poaching and collecting). All of these issues are current concerns in Ethiopia, with important implications for livelihoods, sustainable development and green growth. The relationship between biodiversity loss and poverty is not straightforward, and many of the linkages between poverty and biodiversity are not yet fully understood (Bille et al., 2012; Frasse and Grote, 2013).

Nevertheless, there is frequently considerable spatial overlap between areas of high biodiversity and high poverty, creating a rationale for pursuing both poverty alleviation and biodiversity conservation simultaneously in countries such as Ethiopia. Some recent research has focused on crop biodiversity in Ethiopia, and has highlighted the value – and the comparative stability – of crop biodiversity in the country, and the importance of crop genetic diversity for drought

resilience (Chavas and Falco (2012); Falco and Yesuf (2010); Falco and Chavas (2009); BangwayoSkeete et al. (2012); Bezabih and Sarr (2012); Samberg et al. (2010). Wild biodiversity is more problematic, with significant tensions generated between the need for rural communities to secure their livelihoods and the need for effective biodiversity conservation, for instance through the creation and maintenance of protected areas (such as elephant sanctuaries) (Tessema et al. (2010); Seifu and Beyene (2014); Kebede et al. (2014)). To date, there has been little progress in reversing the overall decline of biodiversity, despite the existence of many environmental management policies and initiatives (Kidane-Mariam, 2013). In contrast to this overall picture of decline, some evidence suggests that urban biodiversity may be improving in some parts of equatorial Africa, particularly as a result of small-scale urban agriculture (including both urban livestock production and small mixed crop-livestock farming) (Lee-Smith, 2010).

4.3.5. Pollution issues

Pollution issues encompass a broad range of types of air, water, soil and land pollution, with the result that these resources are contaminated by anthropogenic substances and their ability to provide sustainable ecosystem services may be compromised. Air pollution includes the emission of black carbon (soot), aerosols, nitrogen oxides, sulphur oxides, volatile organic compounds, lead and other forms of particulate matter, as well as the problem of acid deposition. Those emissions are disproportionately from urban, industrial and transportation sources, although some important forms of rural air pollution also occur (particularly particulate matter released from biomass burning). These and other pollutants are responsible for significant human mortality and morbidity as well as for multiple ecological effects, such as impaired plant growth and reduced agricultural productivity.

Recent research has highlighted the continuing heavy dependence on, and inefficient use of, biomass resources in Ethiopia, which have contributed to the loss of forest resources (Section 3.2) and to indoor air pollution and poor health through the use of traditional cooking technology. This is despite the efforts made by government and other institutions to promote the

adoption of new cooking technologies, which had met with only limited success (Beyene and Koch (2013); Gebreegziabher et al. (2012).

Water pollution includes both point-source and diffuse release of multiple pollutants ranging from agricultural fertilizers and pesticides to municipal and industrial effluents. These in turn cause health impacts and a wide range of environmental problems, including eutrophication (due to nutrient enrichment of water bodies), harmful algal blooms, the creation of anoxic 'dead zones' in lakes, and impacts on fisheries and livelihoods. Water pollution may occur as a result of discrete catastrophic events – such as accidental industrial discharges – and these may have profound consequences for ecosystems, fisheries, tourism and livelihoods at local and even regional scales. Pollution of freshwater, groundwater, soil and land resources encompasses many point-source and diffuse types of contamination – that in some cases may be severe (for instance, due to inappropriate release of hazardous waste), but again these are generally localized events. Some exceptions to these for which the evidence base is particularly sparse include the pollution of air, water and soil by substances for which the regulatory frameworks are currently embryonic – such as for nano particles, micro-plastics and pharmaceuticals – and for which potentially widespread pollution may now be occurring in the absence of effective environmental regulation, monitoring or management, with unknown consequences (Caplain et al. (2006), Bakshi et al. (2008).

In urban areas of Ethiopia, chemical pollutants hazardous to human health may accumulate in harmful concentrations. Combustion of fossil fuels, as well as poorly-regulated industrial processes, release sulphur and nitrogen compounds, volatile organic compounds, heavy metals and other pollutants that cause respiratory and heart disease, lung cancer, acute respiratory infections in children and chronic bronchitis in adults, aggravating pre-existing heart and lung disease and/or triggering asthma attacks (Kamapa and Castanas, 2008). Industrial chemical pollutants such as methyl mercury, polychlorinated biphenyls (PCBs), and toluene are neurotoxic and recognized causes of subclinical brain dysfunction and neuro-developmental disorders; these are found in potentially harmful concentrations in urban areas (Gradnjean and Landrigan, 2006). Occupational exposure occurs in large factories and small workshops; domestic exposure occurs when biomass/coal is used for cooking and heating homes; and vehicle traffic creates ambient air pollution in urban areas. Chemical pollutants may impact more severely on urban poor

populations as both unhealthy working conditions and the use of biomass fuels in indoor cooking stoves and heaters are characteristic features of a typical urban poor lifestyle (Kjellstrom et al., 2007).

4.3. Links to the economy

4.3.1. Transport

It has been acknowledged that empirical research characterizing transportation markets in developing countries is scarce, and this is a significant research gap (Martin, 2005). Yet an effective transport network is essential for market development in Ethiopia, which is in turn an integral part of development initiatives, poverty reduction and economic growth. Transport is a critical issue for key industries in Ethiopia, such as agriculture, in which improved transportation links offer farmers better access to markets to sell produce and labor, and to purchase inputs (such as fertilizers) (Bhatta and Fanta, 2014). In export-oriented activities, such as the growing Ethiopian industry producing cut flowers for export, improvements in road transport infrastructure are required in order to reduce the postharvest loss of perishable produce (Aman, 2014; Mano et at..,2011).

However, transport is also associated with environmental issues that may be severe in places and that may constrain economic and social development. Modes of transport based on fossil fuels contribute to climate change and local air pollution, with implications for human health and ecological change. Construction of roads, railways and airports leads to land clearance, soil erosion, land degradation, ecological change and biodiversity loss. Moreover, new road development tends to open new areas to increased levels of environmental impact (including by illegal activities, such as logging); they can facilitate higher rates of natural resource exploitation; and they can act as routes for the transmission of disease.

Therefore, transport development in Ethiopia needs to be integrated within an overall strategy for sustainable development and green growth; this is now in progress with the Climate-Resilient Green Economy (CRGE) initiative. Climate-resilient transport infrastructure projects include the construction of an electric rail network (with the Addis Ababa Light Railway Transit (AA-LRT) now open), with significant potential for emissions reductions through switching freight transport

from road to electric rail. Improvement in the fuel efficiency of road transport also has considerable potential to drive emissions reductions, particularly in Addis Ababa. Moreover, some evidence suggests that policies stimulating competition between transportation carriers may be as important as road infrastructure investments in facilitating transportation in Ethiopia (Rancourt et al., 2014).

4.3.2. Industry

Research into the environmental impacts of industry in Ethiopia is scarce, and this represents an important research gap, although some environmental impact assessments have been produced for key industrial developments in the country. Industry in Ethiopia comprises both heavy industry (such as oil and gas production in the Ogaden region of eastern Ethiopia; see Section 4.4) and light manufacturing (such as the leather industry), and these have different types and magnitudes of environmental impact). Heavy industry involves significant natural resource extraction and/or imports, as well as generally high emissions of greenhouse gases, local air pollutants and soil and water contaminants. Light industry, in contrast, may have a smaller environmental footprint although may involve the use of particular resources or pollutants with distinctive environmental consequences (for instance, hazardous effluent from tanning processes, such as at Bahir Dar, including the discharge of heavy metals), (Kibret and Tulu, 2014); (Asfaw, 2014); (Asfaw et al., 2012).

There is considerable overlap between the industrial and agricultural sectors in Ethiopia; and strategies for improving industrial production typically require improvements in the efficiency of agriculture and livestock production. Many forms of light manufacturing (such as horticulture, textiles and leatherwork) are based on deep value chains, which are ultimately dependent on agriculture and livestock production. Hence the environmental impacts that affect agriculture also have implications for industry.

4.3.3. Urban housing and construction

Urban growth and development has significant environmental impacts in Ethiopia, in particular through land use change and through demand for construction materials. Wood products have historically been widely used in the construction of houses, with around 72-74per cent of housing units in both rural and urban areas being constructed using wood and mud (Mekete,

1996 as cited in Birhanu, 2014). Moreover, there are strong linkages between urban and rural areas through the use of wood for fuel: Gebreegziabher et al., 2012, have shown that urban Ethiopian households are dependent on rural areas for around 85 per cent of their fuel needs, with significant implications for deforestation and forest degradation. In turn, this demand leads to growing fuel scarcity and higher firewood prices, with the result that an urban energy transition to cleaner energy sources is required (Gebreegziabher et al., 2012). Urban areas are foci of domestic, industrial and transport activities, with the result that air and water pollution, as well as municipal waste generation, are concentrated in these areas. The highest concentrations of ambient air pollution in the world now occur in developing country cities, including Addis Ababa. Urban air pollution includes the release of black carbon (soot), aerosols, nitrogen oxides, sulphur oxides, lead and other forms of particulate matter, as well as the creation of ozone at surface level. These and other pollutants are responsible for significant human mortality and morbidity as well as for multiple ecological effects, such as impaired plant growth and depleted freshwater ecosystems. However, levels of monitoring and reporting of pollution levels and air quality standard breaches is very low.

Household air pollution due to biomass fuels – which is strongly poverty related – is a known risk factor for acute respiratory infection in children in developing countries, and household air pollution from burning biomass fuel is increasingly recognized as a major global health concern (Emmelin and Wall, 2007). Biomass smoke is associated with chronic obstructive pulmonary disease (COPD); recent research has confirmed that wood smoke and poverty contribute to reduced lung function in rural Africans and that COPD is common in this population (Fullerto et al., 2011). Poor health induced by air pollution in turn leads to economic and social impacts, including impaired education, employment, livelihoods and wellbeing. Reducing air pollution in Ethiopian urban areas requires policies related to energy, transportation and urban planning, as well as to forestry and agriculture, with particular consideration given to the impacts of each strategy on poor communities. Such cross-sectoral integration also requires a strong focus on urban environment and urban poverty in the post-2015 development agenda. Peri urban areas are also important places in which environmental issues are now prominent in Ethiopia. These areas include transitional land which has been previously used mainly for agriculture, but which is increasingly targeted for in-migration and which is experiencing the development of informal settlements in which environmental issues may be particularly acute (Adam, 2014). Urban and

housing construction issues are an often overlooked cause of mortality and morbidity in such areas (Dimitriou and Gakenheimer, 2011). These issues impact most severely on peri-urban poor populations who often live in shelters made from flammable materials (such as wood) with many people to a room and open stoves. The use of biomass-based construction materials – combined with limited or absent planning and construction standards – contributes to unhealthy and unsafe working environments for many urban and peri-urban poor people in Ethiopia. Urban growth and urbanization in developing countries – including Ethiopia – means that strong and growing demand exists for urban housing construction (UN Habitat, 2014). 'Slum upgrading' refers to initiatives to improve housing conditions in urban and peri-urban areas, and to reduce the impact of environmental hazards on urban poor populations. Lack of planning, overcrowding, land tenancy issues and lack of infrastructure and public service are cross-cutting issues that require a coordinated approach to their management. Due to these interrelated issues, urban poverty programmes are ideally designed to reduce environmental hazards. Community participation and acceptance is acknowledged to be an essential element of these initiatives if they are to be successful.

4.3.4. Water and energy

Natural resources are clearly closely related to both the water and energy sectors, with a range of links between environmental issues and the Ethiopian economy. Ethiopia plans a very rapid, five-fold increase in its electricity power supply, based on the construction of large hydropower dams. Hence the most prominent contemporary water issue is the hydrological changes that will accompany the construction of these large dams, such as the Grand Ethiopia Renaissance Dam (GERD), an initiative that has recently been projected to generate basin-wide economic benefits and to improve welfare in the Eastern Nile basin (Kahsay et al.,2015); (Block and Strzepek, 2010).

The GERD is primarily intended for hydroelectric power generation, however, rather than to improve water security, and the likely hydrological and microclimate impacts of the dam remain unknown in their details, but will lead to changes in local (and even regional) hydrology, ecology and patterns of sedimentation and siltation. Additional, and broadly similar, dam-related impacts will probably accompany the construction of the hydroelectric Gilgel Gibe III Dam on the Omo River, including diversion of downstream flow from the socially and ecologically important

Lake Turkana, with a potential loss of ecosystem services and livelihoods that are dependent on that ecosystem (International rivers, 2013). Fears have been expressed that the construction of large hydropower dams could increase the transmission of malaria, through transforming ecosystems and creating new vector breeding habitats. Some research has found that children living in proximity to the Gilgel-Gibe reservoir are at higher risk of contracting malaria compared to those living farther away, meaning that disease prevention and control programmes will be required in the vicinity of this reservoir (and others) (Yewhalaw et al., 2009).

A further dam-related environmental impact for which research is scarce is their effect on wildlife (together with other parts of the downstream ecosystem) where these require pulses of river flow for their lifecycles, and which would otherwise become dependent on the maintenance of artificial flood simulation programmes. Moreover, the extent of the hydrological, regional climate and ecological changes that can accompany large dam construction means that there is significant potential for these environmental issues to drive trans-boundary conflicts, displacement and dispossession of people, and long-term migration between regions.

No recently published research into these issues was found. However, there is some evidence to suggest that farmers who are relocated after inundation of their land have situated their new farms either on steep slopes or in flood-prone areas. This relocation to more marginal land has led to a suite of other environmental impacts, including the removal of trees and forests, and the conversion of grassland and bush-land into agricultural land (with insufficient use of soil conservation techniques). Farmers have also relocated close to other bodies of standing water and/or swamps, thereby becoming exposed to seasonal fluctuations in water levels that may inundate crops, grazing land and settlements (Tefera and Sterk, 2008). Some evidence has shown that the increasing demand for cropland and grazing land, combined with inappropriate land management practices, has the effect of increasing soil erosion and reservoir sedimentation, with knock-on effects for livelihoods, food security and power generation in the future (Tefera and Sterk, 2008).

More broadly, water resource issues in Ethiopia are closely interrelated with other environmental issues, particularly agriculture, energy, food security and climate change; some or all of those issues are increasingly considered together in studies of the food energy-water nexus, for instance. Water and energy, in particularly, are closely related to each other and to economic

development (and green growth) in Ethiopia. Energy use in Ethiopia currently comprises more than 90 per cent traditional biomass use; however, this dependence is changing towards increasing electricity production predominantly from large-scale hydropower plants, with the aim to improve access to modern energy sources (Kalberg et al., 2015).

Ethiopia has some reliance on fossil fuel energy production – such as in the oil and gas industry of the Ogaden region of eastern Ethiopia – yet is aiming to achieve middle-income country status by 2025 without increasing net carbon emissions, and hydropower is regarded as a necessary part of this strategy. Indeed, Ethiopia's planned hydroelectric power development is part of a climate resilient development strategy that may result in the country becoming a regional exporter of green energy. Ethiopia's programmes and plans to increase electricity production through dam construction are projected to increase energy and agricultural production, promote economic development, and facilitate flood control. However, those benefits are likely to come at the cost of considerable environmental, ecological and socioeconomic changes unless effective planning, research and monitoring are undertaken (Yewhalaw et al., 2014).

As mentioned above, Ethiopia is heavily reliant on biomass for energy (fuel wood, crop residues, charcoal and dung) and on wood for construction purposes, with consequent severe impacts on forest resources. Whilst forest resources have been severely depleted in Ethiopia, particularly in the highlands, and although ongoing rates of forest clearance remain high in remaining areas of cloud forest, there is at least now a clearer appreciation of the economic value of intact forest resources and some attempts to manage combined forest-agriculture ecosystems in a sustainable manner. Recent approaches to forest management have focused on the need to manage forests, land and water together in an integrated manner, using landscape management assessment and planning techniques. These techniques attempt to implement best management practices in the locations where they are needed most, although their use may be significantly hindered by their complexity and by the lack of necessary baseline data. Many challenges in forest management in Ethiopia arise because of social and institutional factors, such as uncertainty over property rights (as in Mejengir Zone, Gambella Regional State), and in principle better forest resource management could be achieved with progress in resolving such disputes (Girma and Beyene, 2015); (Gulorzet, 2014). Forest cover and water resource management in the north-western highlands of Ethiopia have been explored in a recent study which found that spatial scale is an

important consideration in this relationship: strong correlations between forest cover and hydrology at smaller scales indicates that land management policies should be oriented to farm level conditions. This is particularly important given that adequate water availability is critical for the food security of the subsistence farmers who comprise 86 per cent of the population in this region (Gebrehiwot, 2015). Forest resource management is also closely linked to biodiversity, with positive linkages to the Ethiopian economy by creating income and boosting GDP through biodiversity conservation and trade as well as through the maintenance of ecosystem services. These benefits need to be set against some negative economic linkages (such as impacts on local people's incomes through reduced access to protected areas, and sometimes through the loss of cultural and traditional values). Although the relationship between biodiversity and economy is not straightforward, recent research has shown that biodiversity acts as an emergency lifeline and/or a social 'safety net', preventing people falling into – or further into – poverty, and that these securities are eroded by biodiversity loss (Roe et al.,2011).

4.3.5. Agriculture

As mentioned above, the Ethiopian economy is based primarily on agriculture, which account for around 50 per cent of GDP and employs about 85 per cent of the labor force. Moreover, agriculture accounts for 90 per cent of total foreign exchange earnings, with coffee alone contributing about 60 per cent of total export value. Agriculture also provides about 70 per cent of the raw material for the food processing, beverage and textile industries in the country (Birhanu, 2014). The Ethiopian government is pursuing an agricultural-development-led industrialization strategy and the links between agriculture, industry and environment are clearly integral to the success of such a strategy. Yet plans to intensify and transform agriculture, increasing yields and economic returns, depend on appropriate management of the environmental impacts that have historically been associated with agricultural expansion and intensification. In particular, land and water resource degradation due to soil and nutrient loss, pollution and sedimentation are serious environmental problems that are likely to increase in the short- to medium-term unless effective monitoring and management is instituted. It is now acknowledged that integrated landscape planning and management tools are essential to minimize land and water degradation. However, whilst many soil-water landscape studies have been published

during the last twenty years, progress in developing operational tools for supporting landscape planning is still limited, partly because of the complexity of the linkages involved and partly because of data shortages (Tamine et al., 2014).

Commercial agriculture – especially the phenomenon of 'land grabbing' – clearly may have profound environmental impacts on soils, vegetation, water resources, wildlife and biodiversity, and obvious knock-on effects for ecosystem services and livelihoods (Cotula et al., 2009). Some evidence suggests that these impacts are most profound for pastoralists, who are disproportionately excluded as a result of changing patterns of land use (Lavers, 2012). However, these depend on the precise activities conducted and the extent to which environmental protection is adequately conceived, planned for, implemented, monitored and reported. There is considerable scope for further research into the precise implications of commercial agriculture and 'land grabs' for environmental change in Ethiopia. The connections between watershed management practices in the Blue Nile Basin and sustainable agriculture have been explored recently, in a study which acknowledged that the trade-off between short-term welfare and long-term agricultural development in the Ethiopian highlands represents a challenge to successful economic development in a predominantly agriculture-based economy (Schmidt and Tadesse, 2014). This study showed that investments in sustainable land and watershed management (SLWM) (including terraces, bunds and check dams) had a significant effect in increasing the value of production at the plot level, although there are some caveats as mentioned above. Although various terminologies are found in the research literature – and various approaches, instruments and techniques for improving the sustainability of agriculture in Ethiopia exist – these generally share a common focus on improving agricultural yields alongside conservation of land, forest and water resources (for instance, through community-based participatory watershed management).Soil erosion and land degradation are critical issues that must be addressed if agriculture based industrialization is to drive economic growth in Ethiopia. Soil erosion and land degradation can lead to food scarcity, loss of income, resource conflicts and furtherenvironmentaldegradation as remaining productive land is exploited more heavily. In turn,the implications of land degradation for food security, in particular, lead to malnutrition and poor health. Therefore land degradation has the potential to preclude or reverse the gains made – or projected to be made – through agriculture-based industrialization: by reducing agricultural income nationally, by increasing the national poverty rate, and by slowing poverty reduction. In

areas particularly prone to land degradation, such as the Ethiopian highlands, further research is required to investigate the potential for alternative livelihood strategies to promote rural development while reducing the impact of intensive land-uses (Ashikari, 2013).

In one such area – the Central Rift Valley area of Ethiopia – environmental vulnerability is high. Recent research has shown that land degradation has occurred in this area for a combination of reasons: population and livestock growth in regions of limited resources; unsustainable farming techniques; the Ethiopian land tenure system; and the persistence of poverty. Consequently, the level and area of Lake Abiyata are falling, and ongoing land degradation has reduced agricultural productivity, in turn causing worse food insecurity and poverty in the area (Meshesha et al., 2012). All of this points to the need for soil erosion and land degradation – along with other related environmental issues – to be considered throughout the planning and implementation of agricultural intensification programmes.

Chapter 5

5. Challenges and prospects for EPI

5.1. Enabling legal and institutional conditions for EPI

5.1.2. The Constitution

Ethiopia's Constitution incorporates a number of provisions relevant to the protection, sustainable use, and improvement of the country's environment. Article 44 guarantees "the right to a clean and healthy environment," while Article 43 pledges "the right . . . to sustainable development." [5] Additionally, Articles 89 and 92 require national policy and government activities to be compatible with environmental health.[6] Article 89 further obliges the government to ensure sustainable development, work for the common benefit of the community, and promote the participation of the people, including women, in the creation of national development policies and programs. Moreover, according to Article 91, the government is duty-bound to protect and support cultures, traditions, natural endowments, and historical sites and objects.

The incorporation of these important provisions into the supreme law of the land has raised environmental issues to the level of fundamental human rights. However, effective implementation mechanisms (like laws, policies, and institutions) are needed to realize these rights. For example, the Constitution in many places underlines consultation and community participation as indispensable elements of development activities, but these still require subordinate legislation to put effective mechanisms in place. Such legislation should oblige government agencies to effectively reach out to the community, handle and respond to their concerns, communicate findings, and provide access to judicial review.

5.1.3. Environmental Policy

Like the Constitution, the Environmental Policy of Ethiopia ("EPE")[7]prioritizes improving the well-being and quality of life of Ethiopians and the promotion of sustainable development.[8] One

[5]CONSTITUTION, Arts. 43 (1), 44(1) (1995) (Ethiopia)

[6] Article 92 (3) " people have the right to full consultation and to the expression of views in the planning and implementation of environmental policies and projects that affect them directly

[7] The EPE was born out of the conservation strategy of Ethiopia in 1997

[8] EPE, *supra note 72*, sec 2., at 3

implementation strategy is the effective management of natural and environmental resources from the federal level down to the woreda and community levels. Another strategy envisaged within the Policy is to assign resource management to one organization and protection, regulation, and monitoring to another. The EPE also discusses specific principles meant to guide development activities. Some of these are briefly discussed below, illuminating the links between international environmental principles and Ethiopian policy statements.[9]

a. *Right to a Healthy Environment* – as with the Constitution, the EPE guarantees every person's right to live in a healthy environment.
b. *Community Participation and Decision-making* – acquisition of power by communities to make their own decisions on matters affecting their lives and environment. Similar to the international Principles of Subsidiarity, Public Awareness, and Participation.
c. *Renewable and Nonrenewable Resources* – use of renewable resources should be sustainable, while use of nonrenewable resources shall be minimized and, where possible, their availability should be extended (e.g., through recycling). This is the Principle of Inter-Generational Equity, and is related to the Principle of Sustainable Use of Natural Resources.
d. *Technology* – adoption and dissemination of technologies that use resources efficiently, and support for communities and individuals to use and manage such technologies. This is also related to the Principle of Sustainable Use of Natural Resources.
e. *Precaution* – "err on the side of caution when a compromise between short term economic growth and long-term environmental protection is necessary;" this is the Precautionary Principle.
f. *Cost-Benefit Analysis* – full environmental and social costs (or benefits forgone or lost) shall be incorporated into public and private sector planning, as well as accounting and pricing of resources. This is similar to the Polluter (and User) Pays Principle.
g. *Social Equity and Equality of Women* – social equity shall be assured, particularly in resource use, and women shall be empowered and treated equally with men in all activities. This would be included in the Principle of Intra-Generational Equity.

[9] EPE, supra note 72, sec. 2.3 at 4-6

h. *Environmental Assessment and Monitoring* – regular, accurate assessment and monitoring of environmental conditions, along with publication of all data, in keeping with the Duty to Assess Environmental Impacts.
i. *Awareness and Information* – increased awareness and understanding of environmental and resource issues, as in the Principle of Public Awareness and Participation.
j. *Land Security and Preservation of Species* – uninterrupted access for people to their own land and resources, and recognition of other species' right to exist. These are parts of the Principle of Sustainable Use of Natural Resources.

The EPE further stipulates detailed environmental policies for sectoral and cross sectoral activities, together with implementation policies[10]. The original draft version, as an annex, also included draft interpretation guidelines, standards for specified industrial sectors, general standards for all other industrial effluents, standards for gaseous emissions, and standards for noise limits[11]. In addition to the EPE, other sectoral policies have an indispensable role in the improvement of Ethiopia's environmental quality. The Ethiopian Water Sector Policy[12] and Ethiopian Water Sector Strategy[13]are good examples.

The Water Policy provides specific policy directions for environmental and water resource protection and conservation; use and management of technology and engineering in the sector; water cost and pricing; groundwater utilization; disaster, emergency, and public safety management; "equitable and reasonable" use of trans-boundary water; and participation of stakeholders in the sector. The Water Strategy contains detailed guidelines for implementing the above policies, along with guidelines on the development of hydropower, guaranteeing water supply, sanitation, and exploitation of agricultural irrigation potentials. These documents, on paper at least, try to strike a balance between resource development and conservation, but can have little effect without strong legislative and institutional regimes.

[10] EPE, supra note 7, at 6-25
[11] Ethiopian industrial pollution regulation not
[12] Ministry of water resources, Ethiopian water sector policy (2001), http://www.mowr.gov.et
[13] Water strategy supra note 83, at 2-23

5.1.4. Environmental Laws

Many laws have been enacted and treaties adopted for the protection of different segments of the Ethiopian environment. Due to the large volume of these federal laws and treaties, this part will only list some of them instead of thoroughly discussing each one.[14]

- Awash National Park Establishment Order No. 54/1969, Simien National Park Establishment Order No. 59/1970, and similar other establishment documents;
- Institute of Biodiversity Conservation and Research Establishment Proclamation No. 120/1998 (later renamed the Institute of Biodiversity Conservation by Proclamation No 381/2004);
- Water Resource Management Proclamation No. 197/2000;
- Public Health Proclamation No. 200/2000;
- Proclamation on the Establishment of Environmental Protection Organs No. 295/2002;
- Environmental Impact Assessment Proclamation No. 299/2002, Directive Issued to Determine Projects Subject to Environmental Impact Assessment ("EIA") No. 2/ 2008, EIA Guideline Document (May 2000), EIA Procedural Guideline Series 1 (2003), Guideline Series Documents for Reviewing EIA Reports (2003), EIA Guidelines on Irrigation (2004) and on Pesticides (2004);
- Environmental Pollution Control Proclamation No. 300/2002, Regulation and Directives for Emission Standards of Selected Industries (2008);
- Criminal Code of Ethiopia No. 414/2004 [penalizes pollution and related offenses];
- Federal Rural Land Administration and Land Use Proclamation No. 456/2005;
- Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation No. 482/2006;
- Solid Waste Management Proclamation No. 513/2007;
- Development Conservation and Utilization of Wildlife Proclamation No. 541/2007;
- Forest Conservation, Development and Utilization Proclamation No. 542/2007;
- Radiation Protection Proclamation No. 571/2008;
- Ethiopian Wildlife Development and Conservation Authority Establishment Proclamation No. 575/2008; and

[14] Ethiopian house of peoples representatives (http:// www.ethiopar.net

- Bio safety Proclamation No. 655/2009.

In addition to national laws, increasingly globalized environmental issues often require treaties to coordinate national efforts. These treaties are part of the Ethiopian environmental legal framework[15].Between 1972 and the present; Ethiopia ratified many multilateral environmental agreements, including:

- The Convention on Biological Diversity;
- The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal and Basel Ban Amendment;
- The Bamako Convention on the Ban of the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes within Africa;
- The International Treaty on Plant Genetic Resources for Food and Agriculture;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- The United Nations Framework Convention on Climate Change and its Kyoto Protocol;
- The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa;
- The Cartagena Protocol on Bio safety to the Convention on Biological Diversity;
- The Convention on Migratory Species and the African-Eurasian Water bird Agreement;
- The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer;
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; and
- The Stockholm Convention on Persistent Organic Pollutants, Administration of these treaties is, however, fragmented by various loosely coordinated federal sectoral offices. At the federal level, implementation of environmental treaties is the responsibility of the Environmental Protection Authority ("EPA"), the Ministry of Agriculture ("MoA"), the Ministry of Water and Energy, and the Ministry of Culture and Tourism.

[15]According to the constitution of Ethiopia, " All international agreement ratified by Ethiopia are an integral part of the law of the land." Thus, there is no doubt that these environmental treaties are part of the national regime and can be affected by domestic laws, and the nation is duty bound to observe the obligations assumed by such treaties. CONSTITUTION, Art. 9() (1995)

5.1.5. Institutional Frameworks for EPI

Under the EPE, different agencies are assigned to "environmental and natural resource development and management activities on the one hand, and environmental protection, regulation and monitoring on the other."[16] The EFCC[17] is the leading federal environmental agency, with the objective of formulating policies, strategies, laws, and standards to ensure that social and economic development activities sustainably enhance human welfare and the safety of the environment.[18] In addition, EFCC is responsible for evaluating the environmental impact assessment reports of federal and inter-regional projects, as well as auditing and regulating their implementation.[19] EFCC is also in charge of providing technical support for environmental management and protection to regional offices and sectoral institutions.[20]

The proclamation that established the EFCC also requires regional states to establish or designate their own regional environmental agencies ("REAs"). These REAs are responsible for coordinating the formulation, implementation, review, and revision of regional conservation strategies and for environmental monitoring, protection, and regulation.[21] In some regions, REAs have been established as parts of other agencies, while other regions' REAs are separate institutions.[22] All regions and city administrations have established REAs. The REAs suffer from practical constraints. Some lack an approved conservation strategy to guide their environmental management, and where such strategies exist, they are limited in practical utility. In addition, structural instability (structural change, transfer of authority, conflict of interests between sectoral offices), under-staffing, and lack of experts are common across REAs. In addition to the EFCC and REAs, the Environmental Organ Establishment Proclamation mandated that "Sectoral Environmental Units" ("SEUs") be established at every competent

[16] EPE, supra note 72, section 5.1 (e), at 27.

[17] The EPA/FCC has two arms: the executive, headed by the director general, and the policy maker(known as the environmental council) which is composed of representatives and stakeholders from all regions.

[18]Environmental protection organs establishment Proc. No. 295/2002, FEDERAL NEGARIT GAZETA, art.6.

[19] Projects that are neither subject to federal licensing, execution, or supervision nor likely to entail inter-regional impacts are within the jurisdiction of environmental agencies

[20]MeleseDamtie and Mesfin Bayou, MELCA Mahber, overview of environmental impact assessment in Ethiopia: GAPS AND CHALLENGES 31 (2008).

[21]Environmental protection organs establishment Proc. NO. 295/2002, FEDERAL NEGARIT GAETA, art.15

[22] MELLESE AND MESFIN, supra note p3, at 3.

agency, with the responsibility of coordinating and following up activities in harmony with environmental laws and requirements.[23]

The purpose of the SEUs is to ensure "that environmental issues are addressed in development projects and public instruments initiated by government institutions."[24] However, SEUs have only been established so far at the Ministry of Mines, Ministry of Agriculture, Ministry of Water and Energy, Ethiopian Roads Authority, and Ethiopian Electric Power Corporation, leaving most relevant federal agencies (as well as all regional ones) without environmental coordination.[25] In managing Ethiopia's environment, government agencies share importance with private individuals, communities, and (to a lesser degree) companies. Before the enactment of the new law on civil organizations (which may shrink their quality of service, number, and capacity),[26] such organizations in Ethiopia were maturing in their quality of service, geographical coverage, and creation of policy dialogue. The role of nongovernmental organizations is increasing in both national and international environmental negotiation and implementation.[27] He notes that Forum for Environment, a local nongovernmental organization ("NGO") active in environmental concerns, is a member of the EPA's Environmental Council. In addition, EFCC is working closely with other NGOs on various issues.[28] Some sectoral/ministry offices are also responsible for specific aspects of the administration of natural resources.[29] For example, the MoA is responsible for forest, soil, land, and wildlife resources; the Ministry of Mines is responsible for mineral resources; and the Ministry of Water and Energy is responsible for water and energy resources. The National Meteorological Agency, under the Ministry of Water and Energy, used to handle issues revolving around ozone layer protection until recent transfer of this task to the EPA, while the National Radiation Protection Authority, under the Ministry of Science and Technology, renders radiation protection services. The Institute of Biodiversity Conservation ("IBC") is responsible for exploring, surveying, and ensuring conservation of the country's

[23]Environmental protection organs establishment proc. NO. 295/2002, FEDERAL NEGARIT GAETA, art.4
[24] MELLESE AND MESFIN, supra note 93, at 33
[25] Mohammed, supra note 6; see also MELLESE AND MESFIN, supra note 93, at 33
[26] Charities and societies proc No. 621/2009, FEDERAL NEGARIT GAZETA
[27] McKee, supra note 57, at 58
[28] Mohammed, supra note 96.
[29] Sea powers and duties of the executive organs of the federal democratic republic of Ethiopia Proc. No. 4/1/2005, FEDERA NEGARIT GAZETA

biodiversity.[30]Despite these efforts, environmental protection in Ethiopia remains in its infancy due to a focus on short-term economic gain, lack of commitment, under-staffing and lack of capacity in many offices, lack of effective enforcement mechanisms, and loose coordination among responsible agencies. While there has been progress, it has been incommensurate with the nature and degree of threat that Ethiopia is experiencing.

The EFCC has now taken a step of implementation of mainstreaming of environmental protection in to other sectoral and cross sectoral areas, but due to understaffing; lack of integrated understanding and lack of political will the fragmented nature of implementation is still ongoing. Mainly this problem is challenging the growth and development Endeavour of the country.

[30] Institute of Bio diversity conservation and research establishment Proc. No. 381/2004, FEDERALNEGARIT GAZETA

Chapter 6

6. Findings and discussions on case studies

6.1. Findings and discussions on Integrating Bio-diversity in Ethiopia

Ethiopia is one of the top 25 biodiversity-rich countries in the world, and hosts two of the world's 34 biodiversity hotspots, namely: the Eastern Afromontane and the Horn of Africa hotspots. It is also among the countries in the Horn of Africa regarded as major centre of diversity and endemism for several plant species. According to a classification based on agro-ecosystem known as agro-ecological zones (AEZs), Ethiopia has 18 major and 49 minor AEZs, which are inhabited by diverse animal, plant and microbial species. The Ethiopian flora is estimated at 6,000 species of higher plants, of which 10% are considered to be endemic. Woody plants constitute about 1,000 species. It is also among the countries in the Horn of Africa regarded as major centre of diversity and endemism for several plant species. According to a classification based on agro-ecosystem known as agro-ecological zones (AEZs), Ethiopia has 18 major and 49 minor AEZs, which are inhabited by diverse animal, plant and microbial species. The Ethiopian flora is estimated at 6,000 species of higher plants, of which 10% are considered to be endemic. Woody plants constitute about 1,000 species.**Sectoral and cross sectoral policies relevant to biodiversity**

The national environment policy includes various cross-sectoral and sectoral environmental policies related to biodiversity. The ones pertinent to this project are: community participation and environment, land and natural resources use rights, land use planning, social and gender issues, environmental accounting and economics, environmental information system, environmental research, environmental impact assessment, environmental education and awareness, and monitoring. Policies on land use planning, environmental impact assessment and land and natural resources use rights are of most relevance to biodiversity mainstreaming, and are briefly described below.

- **Land use planning:** The environment policy requires the utilization of land resource to be based on land use planning. Accordingly, it provides for the development of strategic land use plans at the federal, regional and community levels. These plans are expected to

define broad land use and land user categories and provide generalized resource management recommendations which would form the basis of detailed local level resource use and management plans. Of relevance to this project is the significance of assuring land tenure to the sustainable use and management of natural resources. In this regard, it stipulates the need to assure, when taking any decision, the right of land users to a secure and uninterrupted access to land and the renewable natural resources thereon (e.g. trees, water, wildlife and grazing); and the customary rights of access to and use of land and natural resources which are socially equitable and are preferred by local communities. However, where economic developments are proposed, recent trends show that in some areas these are taking priority over protection of biodiversity and ecosystem services.

- **Environmental Impact Assessment**: The environment policy stipulates the legal requirement for Environmental Impact Assessments (EIAs) as a pre-requisite for development, especially project-led development. This requires the preparation of appropriate environmental impact statements and conducting of environmental audits for private and state development projects. In this regard, the policy requires that the government establishes the necessary institutional framework for undertaking, coordinating and approving EIAs and subsequently carry out environmental audits required to ensure compliance with conditional ties. However, again, where economic developments are proposed, recent trends show that in some areas these are taking priority over protection of biodiversity and ecosystem services – often when due to the huge distances between region HQs and development sites, technical staff cannot physically visit and lack up-to-date information on areas which should be protected.

6.1.1. Horizontal policy integration of bio-diversity in Ethiopia

Table 6.1. Horizontal EPI checklist for HEPI of bio-diversity in Ethiopia

Indicators for HEPI	Verification	Means of checking	Remark
A constitutive mandate providing principles and procedures for reconciling conflicts and trade-offs related to	Strategies outlined integration imperative and concerned sectoral departments for	- National conservation policy of Ethiopia - National	- Has mandated Ethiopian bio-diversity institute under the umbrella of EFCC - Outline mainstreaming and is implied that when issues of

de-coupling and environmental policy integration	implementation but not necessarily provide procedures and principles for reconciling conflicts and trade-offs related to decoupling and EPI	policy on bio-diversity conservation and research	development are creating challenges on the natural bio-diversity of the country is legally mandated to inspect and advise for measures to be taken
An overarching strategy for sustainable development goals and operational principles and political mandate for implementation with direct backing from chief executive authority		- National conservation strategy of Ethiopia - CRGE	- The institute is placed next to the high commissionaire
A national action plan with both overarching and sectoral targets indicators and time tables	According to NBSAP the main objective of the NBSAP is "Effective systems are established that ensure the conservation and sustainable use of Ethiopia's biodiversity, that provide for the equitable sharing of the costs and benefits arising there from, and that contribute to the well-being and security of the nation". Revision of 2005 National Biodiversity Strategy and Action Plan started in 2012 and was finalized for the period 2011–2020 in June 2014 But lacks comprehensive indicators to measuring level of integration	- National bio-diversity strategy and action plan (2011-2020).	- NBSAP
A responsible executive	Ethiopian bio-	- GTP	Responsible for the conservation and

body with designated responsibility (and powers) for the overall coordination, implementation and supervision of integration process	diversity institute	- EPE	sustainable utilization of the county's biodiversity resources. In line with this, EBI initiates policy and legislative proposals on the conservation of biodiversity; explores and surveys the diversity and distribution of the country's biodiversity resources; ensure the conservation of the country's biodiversity using in situ and ex situ methods; develops a strategy for the conservation of species threatened by extinction; formulates policy ideas that promote processes that enhance the existence of Biodiversity and control processes that threaten biodiversity; develop systems and technical standards for the conservation of the country's biodiversity; issue directives on the collection, dispatch, and export of genetic materials from the country; and give permits for those who need to access genetic materials from the country.
A communications plan stipulating sectoral responsibility for achieving overarching goals, outlining how cross-sectoral communications are to be structured and made transparent	- Not available	N/A	N/A
An independent auditor with responsibility for monitoring and assessing implementation at both government and sectoral levels and proposing revisions in subsequent generations for strategies and action plans	- The HPR oversight committee - No other independent auditor		But lacks the necessary knowledge and skills
A board of petition and redress for resolving conflict interest between environmental and sectoral objectives	- No board of redress	N/A	N/A

6.1.2. Vertical environmental policy integration in Bio-diversity in Ethiopia

Table 6.2. Checklist for VEPI in biodiversity/ content analysis

Indicators	Means of checking	Remark
Scoping reports of sectoral activity identifying major environmental impacts associated with key actors and processes	GTP implementation reports	- No scoping is being done - Fragmented reporting is noticed
Sectoral forums for dialogue and consultation with relevant stakeholders and affected citizens	GTP implementation reports	- There are sectral forums facilitated by MFCC - Bio-diversity mainstreaming through sectoral forums is also being undertaken only by providing trainings and
Sectoral strategies for change with basic principles, goals, targets and timetables	- Not comprehensive	
Sectoral action plans with specified initiatives for achieving goals with Bio-diversity related policy instruments	- There are action plans	
Green budgets for highlighting, prioritizing and carrying through action plans	- Bio-diversity initiatives are being run Mainly through donor funds	
Monitoring programmes for evaluating implementations and revising strategies and action plans	- Monitoring are being held but not adequate	

6.1.3. Discussion of findings from the interview

This section presents a summary of interview responses of experts in CRGE mainstreaming in MFCC, bio-diversity mainstreaming program in MFCC and bio-diversity institute. The following are identified as a challenge for integrating bio-diversity in other sectoral undertakings.

6.1.3.1. Lack of capacity and decision support tools to check adverse development and its impacts on biodiversity

1. Lack of environmental information and accounting system

Federal Government Departments both at national and regional level lack capacity and decision support tools to regulate ongoing land conversion or check adverse impacts on biodiversity. There are some rudimentary regional planning exercises, but not based on a comprehensive resource assessment. This requires among other things compiling and storing large data which only is possible through technology. The environmental organs in particular and CSA of Ethiopian in general have a lack of capacity in collecting and managing data. There is also lack of tools that can track biodiversity and socio-economic impacts (such as GIS mapping of critical biodiversity areas, biodiversity scorecards) of the large investments planned by the CRGE. These are needed to shift policy and investment towards biodiversity friendly options.

2. Lack of accounts for bio-diversity loss

The economic impacts of inter alia pressure from population growth on ecosystem services, loss of forest cover and degradation of watershed functions are not reflected in the national accounts, which provide the essential data, based on which most economic policy decisions are made. It is not clear how much the government budgets or spends on biodiversity because the budget is not coded for biodiversity expenditure. Public expenditure review processes do not ask specific questions about biodiversity costs, benefits or risks. Consequently, the pros and cons of biodiversity friendly projects cannot be highlighted. There is a strong need for a BD Expenditure Review (BDER) to inform the CRGE investments.

6.1.3.2. Lack of a coherent incentive framework to curtail habitat loss and degradation with very short term planning horizons:

Many poor farmers and livestock keepers in Ethiopia live from hand-to-mouth and manage resources with very short term planning horizons. Under current conditions, these land users cannot afford to carry the cost burden of conservation from which the broader national and global society benefits. Although at a global level biodiversity and ecosystem services are highly valued, these values are not translated into incentives for local resource users who are in direct interaction with forest resources for their livelihoods. There is a need for an incentive framework with clear mechanisms to pay for the conservation of inter alia forests and rangelands, also watershed protection. There is also need for clear and uniform benefit sharing and reward mechanisms to discourage an "open access" mentality and forest conversion to other land use. .Secondly, given the ambitious targets set forth by the CRGE, it is clear GDP and domestic savings alone will not be enough to achieve what is needed. Ethiopia's green growth plans will require other investments and PES is one of the vehicles available to Government for attracting such finance. PES would trigger a shift from contra-conservation to conservation-compatible land uses.

6.1.3.3. Lack of capacity of bio-diversity institute and EFCC

Importance of biodiversity conservation is in planning and EIA systems but staff have limited capacity to implement systems/ MOFED and MEF. GoE budget not coded for environment / MOFED and MEF. This results in lack of adequate funds for implementation. In addition to this the achieving actual integration requires investment in data production and scientific intervention but lack of budget has handicapped this.

6.2. Findings on case study of Integrating EIA in Ethiopia

6.2.1. Institutional and organizational basis—history

Ethiopia had no environmental institutions or organizations to speak of until the 1990s. In Ethiopia, as in many other countries, awareness about environmental issues significantly increased in the 1990s. At that time, the main environmental issues were identified, some frame work environmental policies were drawn up, and administrative structures to implement these

policies were established. Following the United Nations Conference on Environment and Development (UNCED), or the Earth Summit, which was held in Rio de Janeiro, Brazil, in June 1992, environmental issues gained considerable attention from the government of Ethiopia. To address environmental problems and move toward achieving sustainable development, the mechanism of environmental protection adopted by Ethiopia was first marked by the incorporation of environmental issues into the 1995 Constitution of Ethiopia (GoE, 1995a). Constitutional provisions related to the environment are provided under Articles 43, 44, and 92 of the constitution (GoE, 1995a).

In the same year, EPA, which was responsible for the provision and enforcement of the country's environment laws, was established in response to the requirements of the Constitution. As one of its first responsibilities, and with a view toward further amplifying the constitutional provisions on environmental protection, the Environmental Policy of Ethiopia (EPE) was approved in 1997 (EPA, 1997).

The Environmental Policy of Ethiopia (EPE) is a framework that requires the formulation and implementation of laws, standards, and guidelines as well as institutional arrangement. The EIA Proclamation (ProclamationNo.299/2002), which was enacted in2002,isone such law (Government of Ethiopia [GoE], (2002b).

The overall goal of the EPE is to improve and enhance the health and quality-of-life of all citizens and to promote sustainable social and economic development through the sound management and use of natural, human made, and cultural resources and the environment as a whole to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (Environmental Protection Authority [EPA], 1997). This overall policy goal has specific objectives, including:

- The improvement of the environment of human settlements,
- Prevention of pollution of the land, water, and air,
- The improvement of the cultural and natural heritage of the country,
- The empowerment and participation of the society in environmental management, and
- To promote environmental education and environmental impact assessment. (Environmental Protection Authority [EPA], 1997).

The EPA was established to: "…ensure that all matters pertaining to the country's social and economic development activities are carried out in a manner that will protect the welfare of human beings as well as sustainably protect, develop, and utilize the resource bases on which they depend for survival"(GoE,1995b). The EPA was reestablished in 2002 by the Environmental Protection Organs Establishment Proclamation (GoE, 2002a). The main aim of this law was to establish a system (e.g., formulate policies, strategies, laws, and standards), that fosters coordinated, but differentiated, responsibilities among environmental protection agencies at the federal and regional levels to foster sustainable use of environmental resources, thereby avoiding possible conflicts of interests and duplications of effort (GoE,2002a). The environment finally got its own ministry, which absorbed the EPA in 2013, the Ministry of Environment and Forest (MoEF).

The ministry's name was then changed to the Ministry of Environment, Forest and Climate Change (MoFECC) in 2015. Since 2015, MoFECC has been responsible for carrying out environmental management and EIA studies. EIA is used to predict and manage the environmental effects that may result from proposed development activity; thus, it is intended to help bring about intended development while mitigating adverse environmental impacts. Furthermore, assessment of the possible impacts on the environment prior to the approval of a public instrument is recognized as providing an effective means of harmonizing and integrating environmental, economic, cultural, and social considerations in to a decision-making process in a way that promotes sustainable development.

To this end, the EIA law is prepared to facilitate the implementation of the environmental rights and objectives provided by the Constitution and to maximize the socio-economic benefits of a proposed development by predicting and managing the environmental effects it might entail prior to its implementation. To support the EIA proclamation with relevant directives and guidelines, the EPA issued a draft EIA Procedural Guidelines document in 2003 (EPA, 2003) and Environmental Assessment Reporting Guide in 2004 (EPA, 2004). These documents provide background and a general guidance to the EIA process and to environmental management in Ethiopia. The EIA Procedural Guideline document provides

Guidelines for EIA standard procedures and defines the roles and responsibilities of all parties involved. Furthermore, the guidelines provide a list of projects and activities that require full,

preliminary, or no EIA. The annexes of the 2003 guideline include three main lists. The above table lists the 28 major types of projects or activities that might cause serious harm to the environment and communities and for which EIA is automatically required. The decision as to whether to apply EIA to the activities listed in the above tableis made after applying an initial environmental examination (IEE) as a screening measure.

The administrative arrangements and major players in implementing the EIA process in Ethiopia Potentially, EIA involves all members of society. For convenience and, above all, in recognition of the common but differentiated roles each member of society may manifest, the different actors are categorized into five major groups. The roles and responsibilities of these groups as detailed in the EIA Procedural Guideline- Series 1 (EPA, 2003) are summarized below.

6.2.2. Administrative arrangement and major players in EIA

a. Competent agency

In Ethiopia, a Competent Agency is either the EPA/MoFECC, REAs, or sectoral units that are mandated by a proclamation provided for the establishment of Environmental Protection Organs Establishment Proclamation (Proc.no.295/2002) (GoE,2002a) and/or the EIA Proclamation (Proc.no.299/2002) (GoE Ethiopia had no environmental institutions or organizations to speak of until the 1990s. In Ethiopia, as in many other countries, awareness about environmental issues significantly increased in the 1990s. At that time, the main environmental issues were identified, some frame work environmental,2002b) and/or other relevant laws to oversee and facilitate the implementation or administration of an EIA.

b. Proponent

A proponent is any person or organization that initiates a project, policy, plan, or program. The proponent is responsible for complying with the requirements of the EIA process.

c. Consultant

A consultant is an individual or institution that has demonstrated the ability to undertake the EIA and meets the requirements specified under the relevant law. The consultant acts on behalf of the proponent by complying with the EIA process and is responsible for all processes, plans, and reports. The consultant should also ensure that all EIA-related information is made available to the competent agency via the proponent. The consultant must ensure that adequate participation by the competent agency and IAPs has been carried out.

d. Interested and affected parties

IAPs are individuals or groups concerned with or affected by the proposed activity or its consequences. These parties may include local communities, customers and consumers, environmental interest groups, and the general public. IAPs are key to a successful EIA, and they are responsible for providing input and comments at various stages in the EIA process. The input from IAPs should be sought during the scoping phase, in assessing and mitigating impacts, and in the review of the EIA report1, the report documenting the findings of the EIA.

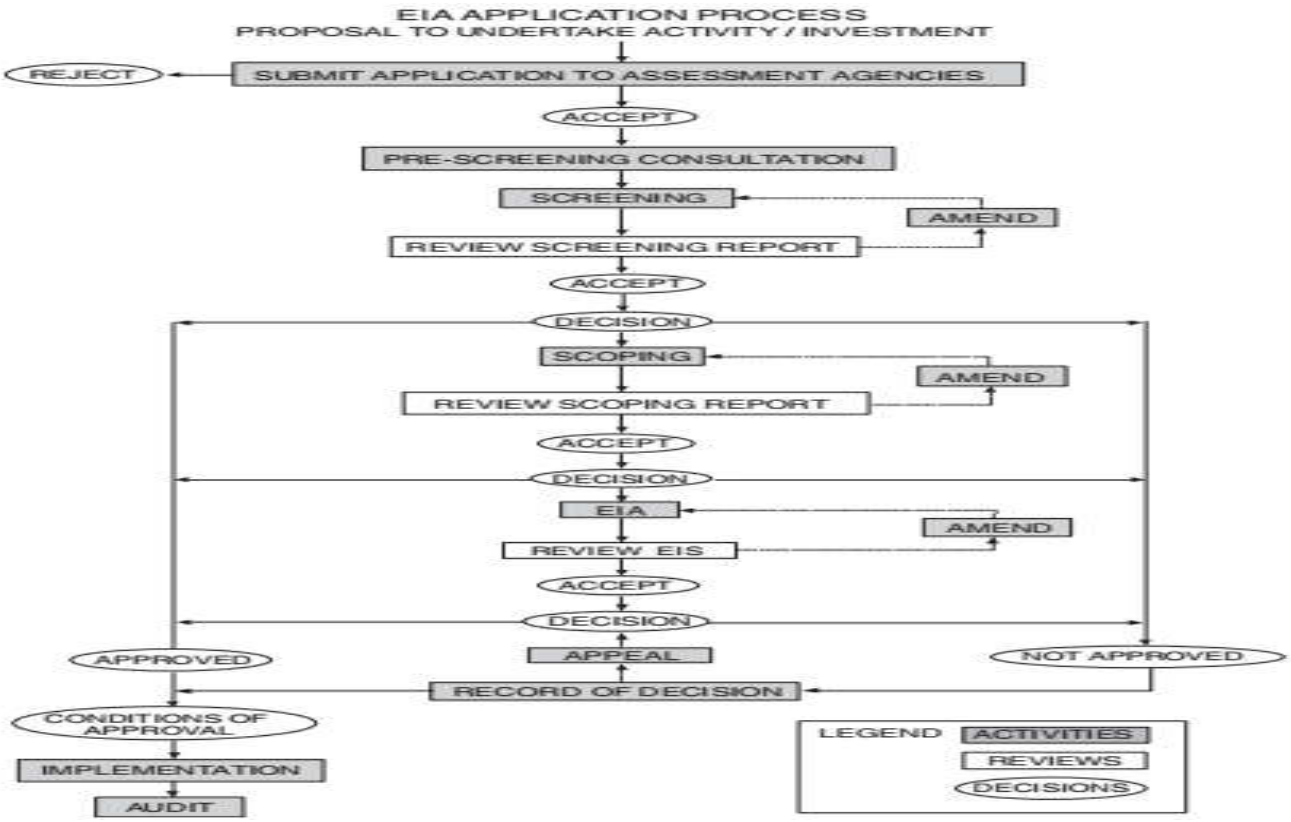
e. Licensing agency

A licensing agency is any organ of government empowered by law to issue an investment permit, trade, or operating license, or work permit, or to register a business organization.

6.2.3. EIA process

The EIA process in Ethiopia involves four basic steps; Preparation of the EIA report, Review and decision making, Implementation and integration of EMP with the project, and Post-implementation monitoring, evaluation, and auditing. These four basic steps are shown in flow chart presented below.

Diagram3: EIA process in Ethiopia



Source: EPA 2003

Preparation of the EIA report identifying and defining the project or activity/project proposal Any proponent embarking on any major development project shall notify the competent authority in writing by the submission of a project proposal, which includes activities that are closely connected with the proposal so that the entire scope of environmental impacts is evaluated.

1. Pre-screening consultation

Pre-screening consultation is a stage during which the proponent and the respective environmental or sectoral agencies establish contact and hold a consultation on how best to proceed with the EIA.

2. Screening

Screening is a rapid assessment of whether a proposal requires a full EIA, an IEE, which applies to projects with limited impacts, where impacts are unclear, or for proposals with inadequate information, or no EIA, and the categorization of the project into one of the three classes—Schedule 1, 2, or 3—as previously discussed. In Ethiopia, screening may be partly determined by the EIA regulations and partly by the use of a screening form; that is, a form developed by the World Bank to evaluate whether the projects that are not listed by EIA regulation require EIA or not.

3. Scoping

Scoping under Ethiopia's EIA procedure involves fact finding and stakeholder consultation to identify valued environmental and social components and significant impacts on them followed by defining the study's boundaries. The scoping process should provide information about the definitions of the key issues to be included in the environmental assessment. Proactive public consultation is recommended and emphasized to ensure the involvement of a wide range of stake holders. The consideration of reasonable alternatives, involvement of institutions and the public, inclusion of issues raised by IAPs, a description of the public participation that was undertaken, and descriptions of mitigation and monitoring provisions are supposed to be part of the scopingprocess.TheproductionofascopingreportorTermsofReferencedocument,whichlistslikelyissuesorimpactsidentifiedduringthe scoping process, is also required. The Ethiopian system includes a plan for meaningful public participation and the inclusion of communication mechanisms throughout the whole process and provides an opportunity to involve affected people and vulnerable groups to incorporate their concerns into the decision-making process.

4. Baseline analysis

The baseline analysis documents the current state of the environment in the project area and any expected changes under a “without project” scenario, taking into account changes resulting from natural events and from other human activities. The baseline environmental study includes:

- Collection of initial information on baseline conditions and important impact variables, including socioeconomic as well as environmental parameters,

- Analysis of time-series data on physical features and socio-economic factors, and
- Trend analysis.

A comparison of project-induced environmental changes with the expected environmental changes without the proposed project is then assessed.

5. Assessment of impacts

Assessment of impacts includes impact identification, impact analysis and/ or prediction, and quantifying/evaluating the significancce or worth of likely impacts on affected parties and the environment. Identification of impacts ensures that all potentially significant environmental impacts, either adverse or beneficial, wholly or partially resulting from the project's activities, products, or services, are identified and taken in to account in the process. Impact identification also involves defining specific environmental impacts during different project phases. Prediction involves identifying the potential changes in indicators of environmental receptors. Prediction of impacts seeks to identify the magnitude and other dimensions of identified changes in the environment by comparing the situation with—or without—(W-W/O) the project/action during various phases, including planning/design, construction, operation, and decommissioning. Prediction/analysis should forecast the nature and significance of the expected impacts, or explain why no significant impacts are anticipated.

Environmental management plan The EMP consists of the set of mitigation and enhancement measures to be taken during implementation and operation of the project to eliminate adverse environmental and social impacts, offset them, reduce them to acceptable levels, or enhance positive impacts. The EMP includes monitoring, evaluation and auditing frameworks, capacity development and training measures, an implementation schedule, responsibilities, and cost estimates for these measures.

Preparation of EIA report At the end of the above-mentioned steps, a concise but comprehensive report is prepared comprising the description of the project, baseline conditions, identification, description, prediction and analysis, and evaluation of impacts, along with the proposed EMP. The EIA report should be clearly and concisely documented so that key issues can be identified quickly and efficiently by decision makers. A non-technical summary should also be included.

This summary is an important element of the documentation for use by the non-technical stakeholders.

6. Review and decision-making process

Upon completion, the EIA report should be submitted to the competent agency, the IAPs, and an independent specialist for review. Review involves a systematic appraisal of the quality of the EIA report. The purpose of the review is to ensure that the document is an adequate reflection of the environmental impacts that may result from the proposed development, and that the document provides sufficient, relevant, and quality information on which decisions could be made. The review is based on the EIA guidelines, appropriate environmental quality standards, and the relevant legislation. The proponent is responsible for coordinating the IAP reviews, either by distributing the document to all of the IAPs or by making the document available in strategic places (e.g. public libraries, schools, clinics, etc). When the review is complete, the competent agency should decide whether to accept the application as it stands, reject the application, or request that the document be amended. Based on the EIA report review and other information, the competent authority either grants or rejects the environment clearance for the project. The competent agency must provide a record of decision report, which should be provided to the proponent and made available to IAPs upon request. The record of decision report may form the basis of an environmental clearance certificate if the project is approved, and it may contain the details of the conditions of approval. A proponent or other IAP who is dissatisfied with the decision may object to actions, opinions, or decisions made not later than 30 days after receipt of the decision. Appeals should be submitted in writing, clearly specifying the grounds for the appeal to the federal or regional general manager, depending on the competent agency for the EIA. The Project implementation and integration of EMP with project

It is expected that the individual mitigation and monitoring measures and the assignment of institutional responsibilities would require the integration of the EMP in to a project's overall planning, design, budget, and implementation. Such integration is achieved by establishing the EMP within the projects of that the plan's components will receive funding and supervision along with the rest of the project. The mitigation measures and other elements of the EMP are built in to project budgets and contract documents, and a specific project staff may be assigned to supervise implementation of these plans.

7. Post-decision monitoring, evaluation, and auditing

Post-decision monitoring, evaluation, systematic EIA follow up and auditing aims to ensure that actions have been implemented in accordance with the measures specified. Thus, this process performs a dual task of identifying the actual environmental impacts of the project and determines whether the EMP is having the desired mitigation effects. Post-implementation monitoring is the responsibility of the competent authorities. Systematic follow-up activities are needed to:-

- Ensure that the anticipated impacts are maintained within the predicted levels,
- Ensure that the unanticipated impacts are managed and/or mitigated before they create problems,
- Realize and optimize the benefits expected, and
- Provide information for a periodic review and alteration of the EMP and enhance environmental protection through good practice at all stages of the project.

In addition to these follow-up activities, environmental auditing also assesses compliance with environmental policies.

6.2.4. Challenges in EIA implementation in Ethiopia

These are identified through interviews conducted, analysis of studies over the area and analysis of documents.

The objectives of Ethiopia's EIA proclamation are:

- To predict and manage the environmental effects that a proposed development activity entails, as a result of its design, sitting, construction, or operation, or as a result of its modification or termination, to assist in bringing about the intended development;
- To assess possible impacts on the environment prior to the approval of a public instrument (e.g., policies, plans, programs, laws, and international agreements) to provide an effective means of harmonizing and integrating environmental, economic, cultural, and social considerations into a decision-making process in a manner that promotes sustainable development;

- To implement the environmental rights and objectives enshrined in the Ethiopian Constitution, which would be fostered by the prediction and management of likely adverse environmental impacts, and the maximization of their socio- economic benefits; and
- To bring about administrative transparency and accountability, as well as to involve the public and, in particular, communities, in the planning of and decision-making processes regarding developments that may affect them and their environment(GoE,2002b).

Review of EIA-related literature (Runhaar, 2016; Steinemann, 2001), interviews with EIA show that the institutional and organizational frameworks and human resources capacity remain inadequate to ensure the full effectiveness of the EIA system. Huge capacity gaps have been identified at different tiers of government (federal, regional, and local levels) with respect to providing:

- An institutional/enabling environment,
- Organizational capacities, and
- Individual capacities.

6.2.4.1. Challenges related to Institutional capacity (enabling environment)

6.2.4.1.1. Inadequate/ lack of political will/commitment to implement EIA law

Adequate political commitment is necessary to make the EIA system effective. Such political commitment can be expressed by establishing adequate EIA legal framework and implementing it effectively. When we look at the EIA practice in Ethiopia in light of these factors, political commitment can be regarded as in adequate. First, the existing legal framework is not adequate because there is no willingness to make it so. Second, at the implementation stage, there is no serious intention to use the EIA procedure. In sufficient political support for and commitment to EIA at all levels has several causes, including lack of awareness, putting economic priority ahead of environment protection, poor governance, and corruption, all of which override legal norms the political commitment to make EIA work properly is very poor. The government at all levels has shown a lack of political will to implement the EIA law and to support the effective implementation of the EIA system relative to its commitment to pursue policies to attract investment and economic growth. This perspective is demonstrated by the fact that investment

laws have gained strength, while the EIA process has been legally weakened (Janka, 2012). In consistency at the institutional level and lack of complementary action among institutions and between environmental and investment policies and proclamations contradict the enforcement of the EIA law and renders it in effective (see GoE, 2002c, 2003)

Awareness of environmental issues is generally low or lacking at the policy level and among government officials, the main actors in the EIA process, and among the general public, as well. There are also wide spread misconceptions about EIA in Ethiopia. Some even consider it as an obstacle to development activities (Janka, 2012), because of the fact that the EIA process requires extra time and resources to implement.

6.2.4.1.2. In adequate legal and regulatory framework

One of the major challenges to the effectiveness of the EIA system is the inadequacy of the existing legal and regulatory framework. The EIA Proclamation is a framework law that needs specific regulations, directives, or guidelines. However, legally speaking, there are no regulations or other specific rules to support the implementation of the EIA Proclamation. The procedural and review guidelines prepared by the EPA (EPA, 2003) are still at their draft stage, leaving the EIA Proclamation ineffective. The major directives and guidelines that are lacking are those that determine:

- Projects requiring EIA,
- Preparation and evaluation of report, and
- The categories of public instruments that are likely to entail significant environmental impact and the procedures and guidelines of their impact assessment. (Note: EIA guidelines and procedures for public instruments, which are otherwise known as Strategic Environmental Assessment (SEA) and meant for policies, strategies, plans, programs, laws, or international agreements, have not yet been implemented. Thus, present EIA practice in Ethiopia is restricted to the project level.).

Without theses subsidiary laws results, EIA proclamation can hardly produce its intended results, as most of its provisions are too general to be applied without further refinement. There is also a lack of legal and institutional arrangements for the effective coordination and communication among the regional and sectoral offices that has created a great deal of confusion in the EIA

process. Furthermore, the EIA regulatory agencies lack power commensurate with their extensive regulatory functions. They are crippled without a mechanism to compel private or public development proponents, who, by and large, refuse to submit their projects for EIA (Janka, 2012).

6.2.4.1.3. Lack of mandate to exercise responsibilities

Environmental protection agencies are expected to have a full legal mandate, as provided by proclamation No. 295/2002 (GoE, 2002a), in relation to their activities. As a result, these agencies, particularly REAs, do what they are told to do by their superiors because they do not want to be condemned as anti-development agents. This implies that environmental protection agencies may sometimes rubberstamp EIAs and issue environmental clearance certificate without seriously examining the reports. This problem is worse in developing regions of the country, such as Afar, Benishangul-Gumuz, Gambella, and the Ethiopian Somali Region (Worku, 2015)

Most projects do not conduct EIA Article 3.1 of the EIA proclamation (Proclamation No. 299/2002) states that, "without authorization from the Authority or from the relevant regional environmental agency, no person shall commence implementation of any project that requires EIA…." (GoE, 2002b, p. 1953). In this regard, while most government projects do not pass through EIA, despite the fact that they are subject to EIA under the EPA guidelines, many private projects also by pass the EIA requirement. For example, urban projects in DireDawa, which were mainly in the infrastructure sector, involved about 3 billion birr in investment, and that partially failed, were implemented without EIAs (Worku, 2013b). Furthermore, micro-and small-scale industries have been exempted from EIA, even though they can cause serious pollution problems, particularly in big cities. And finally, it can be concluded here that often, public sector projects are the worst offenders for non-compliance with EIA laws and regulations when compared with private-sector projects.

6.2.4.1.4. Licensing agencies do not demand environmental clearance certificate

The EIA Proclamation requires licensing agencies to demand EIA when it is necessary, and it obliges them to cooperate in the implementation of the EIA's provisions. Article3.3 of proclamation No.299/2002 states that "any licensing Agency shall, prior to issuing an investment

permit or a trade or an operating license for any project, ensure that the Authority or the relevant regional environmental agency has authorized its implementation" (GoE, 2002b, p. 1953).

Despite these provisions, most big projects are being implemented without authorization from the authority. However, some proclamations that were made after the EIA Proclamation was enacted have relieved some licensing agencies of their duty to demand EIA. Because of this, and contrary to the EIA proclamation, many licensing bodies refuse to require an environmental clearance certificate as a prerequisite to licensing. Environmental protection agencies have also failed to discharge their EIA related duties effectively in cases in which—for example—developers have failed to observe EIA requirements or conduct pre-and post-EIA monitoring.

Furthermore, when EIAs are conducted, in most cases they are only a formality. In Ethiopia, EIA is often used as a means to an end rather than as a beneficial planning tool. The EIA has tended to be viewed as a "ticking-the-box" exercise rather than as serving its original purpose of improving project design and ensuring that the environment is properly managed. In most cases, EIAs are conducted without prior knowledge of the site (before site allocation). In addition, when EIAs are conducted, the process is more a result of donor requirements than of political will because, among other things, various funding institutions, such as the World Bank, the African Development Bank, and other international development agencies, demand an environmental clearance certificate as a requisite funding condition for government or private projects.

6.2.4.1.5. Late timing

EIAs may be required for major projects, but often, the decision to proceed with the project that's already been made and few (if any) EIAs actually prevent poorly considered or designed projects from proceeding. Project areas are often commenced too late, after major project decisions have already been made, and in some cases, construction is already underway, thereby rendering the EIA a mere formality.

6.2.4.1.6. Effect of the pro-economic growth policies/desire for fast economic development

Ethiopia has faced serious environmental consequences as a result of pro-economic growth policies, which placed greater emphasis on economic growth and profit generation than on conforming to environmental regulations. Highly polluting industries located in the city of Addis Ababa and highly polluting flower farms located around the city are tolerated by the government because of the country's economic growth policies. Ethiopia is one of the poorest countries in the world. Thus, the government's focus upon development is intense, and this focus sometimes leads it to disregard other interests. That is to say, when environmental and development needs appear to be at odds, the economic interest of the country likely leads the government to favor economic development. This is what makes the government's commitment toward environmental protection so low. For example, if we look at the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) and the Growth and Transformation Plan (GTP1), which were the five-year plans of the Ethiopian government from 2005/6 to 2014/15, neither of these previous strategic plans mentions environmental protection as one of their pillars. Instead, both strategic plans provide for economic and social development related pillars.

Conflicting interests Project proponents can be private-sector interests, government agencies, or a combination of the two. The EPA has devolved most of its power to sectoral ministries, and this has created conflicting interests, as a project is proposed and evaluated within the same ministry. Potential conflicts of interest arise when a sectoral ministry is the project proponent for state-owned institutions under its jurisdiction, and the ministry also has to evaluate the EIA and make the final decision on whether to proceed. Conflicting interests due to lack of interagency coordination—for example, among land management, construction permit, licensing agency, and environmental protection offices in Addis Ababa—are also significant.

6.2.4.1.7. Poor compliance and enforcement and in adequate sanctions

Ethiopia's EIA law provides for levying fines on non-complying companies and personnel, with a maximum fine of Birr 100,000 (about $5,000). Such fines have never been levied on non-complying proponents, however. In addition, the level of financial penalty is rarely of sufficient amount to cause project proponents to be concerned about financial sanctions.

6.2.4.1.8. Corruption and Mis management

One of the challenges in explaining why EIA has not been effective involves civil and corporate corruption and mismanagement of the EIA process. EIA is frequently seen as illegitimate and fraudulent, and the resultant recommendations are often overlooked. Many developers negotiate behind closed doors and local residents are rarely consulted. This is due to the competent authority's failure to be fully transparent in terms of providing relevant information and data.

6.2.4.1.9. Organizational capacity gaps

The various institutions that are in place to ensure the effectiveness of the EIA system are not capable of discharging their duties because they face various problems. Worku (2015) found that, at the federal and regional levels alike, organizational capacity gaps are manifested by:

- Lack of appropriate and adequate organizational structure to formulate, review, approve, implement, monitor, evaluate, and audit EIAs;
- Frequent changes in the organizational structures of REAs and Federal environmental organs;
- Inconsistency of organizational structures. Existing organizational structures vary at different tiers of government and in different regions;
- Lack of adequate resource allocation;
- Lack of adequate autonomy;
- The abolition of EIA units from their organizations and the absence of environmental units in most sectoral offices;
- Poor linkage among environmental protection agencies and other relevant organs; and
- Insufficient allocation of funds and time for conducting the EIA, unlike other project-related studies, such as project design and feasibility studies. Project proponents and regulatory bodies do not allocate sufficient funds and time for the conflict resolution stage of the EIA activity.

6.2.4.2. Individual capacity

EIA requires extensive human resource capacity, which is lacking in the major implementing organs of the EIA system, including the competent agencies and the EIA consultancies. All

environmental protection organs, including the EFCC suffer from lack of capacity, and in particular, adequate staff commensurate with what they are expected to do. This is why EIAs are reviewed by only one person. The EPA has given away one of its major regulatory functions to other sectoral ministries, and it lacks the capacity to review and perform follow-ups on EIAs.

The practice of delegating EIA review responsibility by federal EPA to sectoral agencies weakens federal EPA because it deprives it of one of its most important regulatory powers. In regard to the competent agencies, Worku (2015) found out that individual capacity limitations are manifested by:

- Shortage of approved positions in organizational structure;
- Approved positions do not match the demands for performing EIA. There is a mismatch between the tasks and the qualifications of the positions approved in all regions, and the positions are occupied by unqualified individuals;
- There are many vacant positions;
- No job descriptions are in place for most positions;
- High rate of staff turnover;
- Lack of appropriate staff mix to perform EIA;
- Staff members may be asked to do many tasks unrelated to their duties with in the regions, taking them away from their core responsibilities;
- Lack of planned staff development and management mechanisms;
- Lack of attractive incentives for staff members and low salaries compared with those in the private-sector labor market. As a consequence, once staff members gain experience, they are likely to leave; and
- Training does not encompass the larger vision that frames capacity development in the context of environment and development. Instead, training is a piece-meal, ad-hoc activity undertaken simply because there is a given mandate and money available, rather than providing on-going, practical learning that promotes environment and development tissues.

The key to a well-prepared EIA is the makeup and qualifications of the EIA consultant team. The EIA report should be prepared by qualified and licensed professionals, who must sign the document and take legal responsibility for its accuracy. To substantiate this argument, an

assessment of EIAs (Worku, 2015) shows that significant discrepancies, factual errors, technical shortcomings, unwarranted generalizations, critical omissions of information, blatant biases, misrepresentations, and unprofessional editing standards are highly visible. Lack of comprehensiveness and poor overall quality of the resulting EIA reports are, therefore, reflections of the inadequate qualifications of many EIA consultants and supervising staff.

Moreover, the present accreditation process makes it possible for unqualified persons to be enlisted as EIA consultants because it does not insist on expert knowledge of the EIA process. Inadequate qualifications, experience, and certification of EIA consultants and supervising staff, along with non-accountability and lack of integrity of EIA professionals are among the most pressing EIA challenges.

6.2.5. Challenges in the EIA process and practices

Although the existing institutional, organizational, and human resources capacities do not create a conducive atmosphere for the use of EIA indecision-making processes, and the practice of EIA in Ethiopia is far from adequate, some EIAs are conducted. Challenges revealed by a review of the processes and practices of such EIAs are discussed in the following section

6.2.5.1. In complete project screening criteria

The screening process is based on the project types listed in diagram 3of the EIA guideline. There are, however, no criteria to screen projects that are not listed under table 6. .Although Ethiopian law requires EIA for projects that would adversely affect the environment, the directive issued by the EPA provides neither clear criteria nor a legally binding list of projects to determine exactly which projects should require EIA.

6.2.5.2. Inadequate attention given to the scoping process

Scoping involves identification of study boundaries, identification of pertinent issues and impacts, design of public participation mechanisms, consideration of alternatives, and development of Terms of References for further impact assessment. The Terms of Reference serve as a roadmap for EIA preparation and should ideally encompass the issues and impacts identified during the scoping process. In spite of these requirements, scoping is left to project

proponents who, most of the time, are not interested in considering adverse and diverse impacts and alternatives.

6.2.5.3. In adequate public participation

In Ethiopian EIA legislation, public participation is mandatory to incorporate concerns of local residents in the decision-making process; however, this requirement is rarely taken seriously. For example, the lawunderArticle15 states that the Authority or the relevant regional environmental agency shall;

(i) Make any environmental impact study report accessible to the public and solicit comments on it; and

(ii) Ensure that the comments made by the public and, in particular, by the communities likely to be affected by the implementation of a project, are incorporated into the EIA as well as into its evaluation.

Unfortunately, these provisions are not strongly enforced and public participation and consultation is missing or poor and mostly limited to communication with experts. Legally binding public participation guidelines have not yet been provided.

6.2.5.4. In adequate consideration of alternatives

Alternatives are often omitted or not well handled. There is no formal or adequate consideration of alternative projects or sites and/or the "no project" alternative. In some cases, the best alternatives are rejected without adequate consideration because the project proponent is already deeply committed to a particular type of project or technology, or has obtained a permit to use a particular site. Often, the "no project" alternative is not given serious consideration as the process is too much developer driven.

6.2.5.5. Lack of appropriate EIA methods

EIA methods tend to focus on the straightforward processes of describing the project and the baseline environment with much less consideration given to impact identification, prediction, evaluation, mitigation,review,decisionmaking,auditing,andpublicparticipation At the heart of all EIAs is a prediction of the likely environmental outcomes if the project proceeds. Good-quality

data is a major concern during the preparation of any EIA report. The lack of data constrains the application of predictive quantitative models as the core assessment technique.

6.2.5.6. In consistent application of evaluation and predictive tools

Because potential adverse effects of proposed undertakings and alternatives were either ignored or given scanty attention, assessment and prediction regarding the magnitude of impacts are based on generalizations with little or no relation to the project environment. Lack of guidelines on the use of available modeling approaches casts doubt over their application to Ethiopian conditions and on their level of accuracy in prediction. Most of the mathematical models used are not developed for Ethiopian conditions, and analysts lack the knowledge and expertise to enable accurate modeling. Ethiopian EIA practices still consider impacts of individual activities, thereby ignoring cumulative impact assessment. The prediction techniques employed in most of the EIA reports were observed as focusing on primary impacts, with little or no consideration for secondary and tertiary impacts.

6.2.5.7. Inadequate EMPs

There is no sound basis for proposed mitigation measures. Furthermore, the social and environmental costs stemming from development projects are much more difficult to establish accurately than the economic costs and benefits. There is systematic underestimation of costs.

6.2.5.8. Poor quality EIA reports

The reason for the continued ineffectiveness of the EIA process can be attributed to the low quality and inconsistency of the EIA reports. Some EIA reports are of very low quality and may also be excessively long and hard to understand regardless of the reader's level of education or expertise. Many EIA reports fail to provide explicit and comprehensive solutions to negative environmental effects. In addition, lack of transparency on how to mitigate and monitor the environmental impact of projects has resulted in widespread frustration, causing inconsistencies in EIA quality and an EIA process that can be difficult to understand or reproduce. Project proponents usually hire professionals to carry out EIA for their projects and thus, the role of these experts is central to the process. However, until very recently, there was no process of certification of consultants to maintain the quality of EIA report preparation. The recent

certification of the consultants is also not encouraging because of excessively stringent criteria to license firms and individuals. There are guidelines for preparing EIA report (EPA, 2004), but most of the reports tend to be collections and compilations of data. Interpretation and analysis of the collected data is subjected to various inadequacies. Assumptions and limitations of the consultants' analyses were barely discussed in any of the reports.

Furthermore, EIA reports lack cost– benefit analyses, cumulative analyses, quantitative analyses, public participation, monitoring plans, budget allocations for EMP implementation, and definitions of monitoring parameters. There are many reasons behind the poor quality of EIA reports, but one major cause stems from the simple fact that too many EIA reports are prepared with limited environmental information and data. As noted by the World Bank, "the need for vast numbers of EIAs coupled with an absence of baseline environmental data resulted in mass production of EIAs of poor quality and little value"(WorldBank,2012, p.156). The World Bank (2012) also revealed that poor EIA reports are the products of poorly trained EIA practitioners. Kakonge(2013) noted that too many EIAs are being conducted by practitioners with limited capacity and environmental information, resulting in poor-quality reports. These analyses show that there is a need for more training packages for environmental practitioners, particularly in the developing world, not only to upgrade the quality of EIA reports, but also to make the EIA process more effective.

6.2.5.9. Inadequate review process

Once the EIA is complete, the EIA report is submitted to the competent authority responsible for permitting or rejecting development applications. It is essential, therefore, that the competent authority reviews the document. The review process should enable the decision makers to decide whether the EIA report is adequate—whether it is legally compliant and whether the information is correct. The competent authority often has very little time to make a decision, despite the fact that they have a detailed and lengthy EIA report to read through, which may contain errors, omissions, and developer bias. The present review process is characterized by a limited capacity for the review of EIA reports, subjective review criteria, no independent EIA review body, and inefficient communication of EIA results to decision makers. The adequate performance of the review function calls for an independent EIA review body. Furthermore, as already noted, a

shortage of time allocated for the review process makes the review of the EIA reports very superficial.

6.2.5.10. Poorly defined decision-making process

Lack of expertise and limited resources of executing authorities results in inferior decision making. One of the best examples of a very poor decision is the environmental clearance provided for the leather processing industry in Sululta town without giving due consideration to the importance of the area as a future water supply and neglecting the area as the center of a huge livestock development, including dairy farms.

6.2.5.11. Proposed mitigations are not implemented in most cases

It is common for an EIA to recommend actions to mitigate the adverse impacts of a proposed project. What is far less common is to have assurances that a proposed mitigation will be implemented. Indeed, in some cases, the mitigations recommended in an EIA report consists of actions that the project proponent has no authority to implement. Moreover, there are many cases in which project proponents completely ignored those mitigations that could have been implemented.

6.2.5.12. Communicating EIA results

EIA reports are not made available to the public in current Ethiopian practice, and they are not published for public inspection as a means of communicating the substance of the EIA.As a consequence, the EIA process loses much of its value and ends up being merely a fruitless legal requirement. There is no question that the communication of EIAs to all stakeholders plays a crucial role in reducing confusion, conflict, and misconceptions about the project. Communication of EIA findings ensures that the EIA process addresses the main issues, harnesses local knowledge, improves the project's capability to respond to community needs, reduces transaction costs (of conflict), and improves the acceptability of projects by IAPs. The ineffective communication of EIA results in Ethiopia can be attributed primarily to factors such as the complex and technical form in which the EIA reports are presented, language barriers, illiteracy, lack of availability of the reports for public review, and over-reliance on foreign

experts in the EIA process. The presentation of EIA reports in such a technical form fails to communicate their message to readers who are not specialists.

6.2.5.13. Insufficient or no monitoring/follow up after the implementation of the identified environmental protection measures/ environmental management plans

Article12.1of the EIA proclamation states that "the authority and the relevant environmental agency shall monitor the implementation of an authorized project in order to evaluate compliance with all commitments made by, and obligations imposed on, the proponent during authorization" (GoE, 2002b, p. 1955). However, commitment by the authority and the relevant environmental agency "to monitor" is not sufficient. To have EIAs that are useful and strategically significant, there must be adequate follow-up mechanisms. Lack of these mechanisms is currently one of the weaknesses of the EIA process. EIA report has been prepared and approved by government authorities; it is supposed to include an EMP for implementation. There are several reasons why EMPs are not implemented, including lack of allocation of funds by the proponents, lack of enforcement staff from the government to make sure that the work is done, lack of quality data and information, and lack of government commitment to carry out the follow-up activities, given other competing priorities. Worku (2011,2012,2013a and b, and 2015) observed that regulatory authorities have their own limitations with regard to manpower, technical resources, and ever increasing workloads that hamper carrying out purposeful monitoring.

6.2.5.14. Post-project implementation auditing is rarely conducted

The general absence of auditing to check on whether mitigation measures were implemented as planned or that the implementation complied with legal and regulatory frameworks is part of broader problems with the EIA process.

6.2.6. Opportunities to improve the effectiveness of the EIA system in Ethiopia

Because the inadequacies in the EIA institutional and organizational frameworks are coupled with poor human resources capacities, one can conclude that the EIA system in Ethiopia has largely been a failure. There are opportunities to improve the situation, however. These include attitudinal change, increased environmental awareness of the decision makers, the increased role

of NGOs, use of EIAs as a condition to receive loans, recognition of the need to protect the environment in the current five-year (2015/2016 to 2019/2020), the Growth and Transformation Plan (GTP2), development of a country-wide ClimateResistantGreenEconomy(CRGE)strategy,self-regulatingindustrial sectors, and extensive institutional infrastructure for training all offer opportunities for future improvements.

6.2.6.1. Increased awareness and attitudinal change

Environmental awareness in Ethiopia has historically been low in regard to EIA. The public, decision-makers, and proponents have not had adequate knowledge about the importance of EIA. This, in turn, has made the use of EIA difficult. Nowadays, however, environmental education in the country is increasing. Raising environmental awareness will empower the public to demand environmental protection and participate meaningfully in environmental decision-making processes, including in the EIA process. Awareness of the importance of environmental protection as well as environmental consciousness is growing among the public and politicians, and attitudinal change is beginning to develop. With increased awareness, pressure from the public is growing, as the public demands action to stop further environmental degradation. The demand for a better environment is forcing a policy shift, as people are challenging government decisions in cases in which industrial growth is favored over environmental protection. Moreover, change in income levels and demands for personal comfort and for socially responsible behavior on the part of industrial units would open up opportunities to improve the implementation of environmental laws and policies. As environmental problems have become more serious, the Ethiopian government has begun paying more attention to the environment. Some government officials have begun to appreciate the advantages that the EIA process can provide and are favoring its use. Similarly, some project owners, including government organs, are performing EIAs and submitting them to environmental protection organs for evaluation. Furthermore, sectoral agencies that have not established environmental units are now establishing these units, whereas those that already have them are strengthening their capacities. Thus, changing attitudes represent a factor that could lead to a more effective EIA system in Ethiopia.

6.2.6.2. Increasing role of NGOs

NGOs have been taking steps to contribute to environmental protection. For the past few decades, environmental groups have worked to develop activities aimed at raising public awareness and encouraging public involvement in decision-making processes. The aim of the environmental movement is to improve information disclosure and engage various stakeholders' in the process of managing environmental goods. NGOs play a multidimensional role that includes capacity building for a civil society with an emphasis on the principles of sustainable development and creating a forum to facilitate the implementation of regulations involving localities. Their campaigns empower communities by furnishing information on environmental laws, policies, and the effects of environmental damage. These NGOs are catalyzing a participatory movement toward environmental protection involving women and youth as well as school and university students.

6.2.6.3. EIA as a condition for loans/donations

Some financial institutions have been demanding the use of EIA as a condition precedent to the making of loans. Donor financial institutions, such as the World Bank, are requiring the use of EIAs. For example, the World Bank withdrew its promise to the Ethiopian government to fund the Gilgel Gibe III dam project because of EIA-related disputes (Janka, 2012).

In Ethiopia, there are many financial institutions, but so far only the Ethiopian Development Bank has decided to require the use of EIAs as a precondition for loans. Other local financial institutions have also displayed an inclination to use EIA as one of the requirements for loans, but they claim that the requirement must first be recognized by the government through legislative measures. Therefore, the fact that financial institutions such as the World Bank demand EIA for the loans they grant represents another hope for a more effective system of EIA in Ethiopia.

6.2.6.4. Recognition of environmental protection in the GTP2

Ethiopia has recently begun implementing GTP2. The plan recognizes both that development should be environmentally sustainable and that the need to protect the environment requires sustainable development. Moreover, the plan also states that it is necessary to formulate policies,

strategies, laws, and standards that foster social and economic development to enhance the welfare of humans and the safety of the environment through sustainable means and to spearhead efforts to ensure the effectiveness of their implementation. Therefore, the GTP2 presents opportunities to protect the environment in general and to use EIAin regard to development endeavors in particular (Janka,2012).

First, it declares that there is a need to formulate policies, strategies, laws, and standards that can contribute to environmental protection. This creates an opportunity to push for policies, strategies, laws, and standards in the environmental field so that the inadequacies in the existing EIA legal framework are remedied. Second, the GTP2 recognizes the need to ensure the effective implementation of environmental policies and the like. This provides another opportunity to push for an effective implementation of EIA-related instruments.

Thus, the weight that the GTP has attached to environmental protection, which can be facilitated through the proper use of EIA, provides another opportunity to improve environmental protection and the EIA system. There are many factors that are competing to make the system of EIA in Ethiopia ineffective; however, there are also several factors that present opportunities that can be exploited to make EIA more effective. Consequently, it is up to all of us to seize the opportunities and standup against the challenges. When this is done, the system of EIA will be able to produce the desired results (Janka,2012).

6.2.6.5. Climate-resilient green economy (CRGE) strategy is being implemented

Ethiopia aims to achieve middle income status by 2025 with a climate resilient green economy. Following the conventional development path would, among other adverse effects, result in a sharp increase in green house gas emissions and the unsustainable use of natural resources. To avoid such negative effects and to bring about sustainable development, the government has developed a strategy to build a green economy.

6.2.6.6. Self-regulation in the industrial sector

The concept of Corporate Social Responsibility (CSR), which emphasizes business practices based on ethical values and respect for employees, communities, and the environment, is emerging quickly. Many corporations realize that initiatives aimed at environmental

conservation provide an effective means for advertising their virtue in the eyes of society. Consumers are now demanding products that are environmentally friendly, which indicates that it is in a company's best interest to "go green."Corporations have also agreed that" clean is cheaper," and in a strictly business sense, saving resources and throwing away less waste and emitting less pollution adds to their profits.

6.2.7. Suggested interventions for future improvements

1. **Building capacity among all EIA stakeholders**

In order to enhance the contribution of stakeholders they have to be made capable in participating in EIA

2. **Strengthening institutional capacity (creating an enabling environment)**

Institution directly or indirectly interlinked with environmental protection and management in Ethiopia must be made aware.

3. **Strengthening legal and regulatory frameworks**

Regulatory frameworks must be shaped in a way that can enable for the strict precedence to be taken for environmental protection than other objectives.

4. **Establishing appropriate legal mandate**
5. **Strengthening networking and collaboration with sector institutions and other stakeholders**

A viable institutional link among the federal, regional, and sectoral organs needs to be established and enforced by law.

Networking with sector institutions enables environmental protection authorities, among others, to enter in to agreements with different sectors, such as the land use and administration offices and licensing bodies, to ensure the use of EIA and to ascertain that EIA is performed by appropriate experts before embarking upon report evaluation.

Awareness creation Efforts must be made to enhance awareness in general, but with a special emphasis given to all key actors. The knowledge level on EIA in the country is very low, and

efforts must be taken to enhance awareness among key actors, such as parliamentarians, various government officials, regional, zonal, and district administrators, business persons, people directly affected by development programs and projects, etc.

6. Enhancing political commitment and support

The fundamental problem the EIA system in Ethiopia has been facing is the lack of adequate political commitment needed to make the EIA system effective. This, in turn, is primarily the result of having given priority to development activities. The effectiveness of the EIA system necessarily demands the existence of adequate political commitment by all concerned authorities, both at the federal and regional levels, to facilitate the use of EIA as a tool for sustainable development. The most important factor that needs to be addressed is the commitment from politicians to comply with the provisions of the constitution to protect the environment.

7. Integrate environmental concerns in to policies, plans, and programs through SEA

To streamline the EIAs of individual development projects, the Ethiopian system should also look at the problem from a higher level. SEA is a tool that aims to integrate environmental considerations into policies, plans, and programs (Noble & Nwanekezie, 2017; Schmidt, Joao,&Albrecht,2006).SEA addresses cumulative effects and alternatives that could not be addressed at the project level, and it refines the scope of assessment at lower tiers. SEAs strongly reduces the time and cost involved in project EIAs. It is, therefore, necessary to make efforts to include environmental protection concerns at policy, plan, and program levels to enhance project-level EIA.

8. Make EIA mandatory for all government and private-sector projects a like

A large number of project owners, including the government, do not appear before the EPA and the REAs with their EIA reports. Currently, there is no effective way to bring them into the EIA process. Those development initiatives and projects designated to pass through the EIA process must be obliged to do so. There should be safeguards, such as increased transparency, to ensure that the project proponents and regulatory authorities are not negligent or politically influenced. The priority in the field of enforcement should be to ensure that those who bypass EIA review are apprehended.

EIA should be a requirement for loans granted by any national or international bank EIA should be imposed as a condition to obtain creditor loans granted by any national or international bank. The same requirement for EIA should be applied in order to receive business licenses, obtain access to markets, and obtain land for a project. Such initiatives must be backed by legal instruments. Some financial institutions such as the World Bank, the African Development Bank, and the Ethiopian Development Bank have been using EIA as a condition for granting loans or funding for development actions. Accordingly, they should continue requiring EIA for the loans and assistance they provide. Commercial Bank Ethiopia and aid organizations, financial or otherwise, should follow in the footsteps of these financial institutions. In particular, the financial institutions in Ethiopia should follow the lead of the Ethiopian Development Bank and demand EIA as a precondition for the loans they grant, as EIA ensures the sustainability of the projects they support.

9. Establish an EIA research and knowledge management center

An EIA research and knowledge management center should be established and research should be undertaken to estimate the likely scale of environmental impacts a development could have on different sectors of the economy. Such information will help to inform the planning of future investment strategies.

10. Strengthening organizational capacity

At the organizational level, capacity development should involve improvements in organizational tools, such as organizational structure, systems, processes, procedures, resources, and communication, and improve an organization's performance and functioning to make it more effective, efficient, and responsive to change, increase coordination and collaboration among groups or departments within the organization, build better relationships with the "outside environment" (e.g., other organizations within or outside the country), and provide better information systems, infrastructure, transport, budget, manpower, equipment, and appropriate software to support the organization's work.

REAs must be strengthened to decentralize the EIA process. A viable institutional link among the environmental agencies and regional and sectoral organs needs to be established. The structure shall allow for smooth communication among internal and external units, departments,

and stakeholders to facilitate the information sharing process. External communication with stakeholders and diverse organizations should be enhanced. The internal communication must also be enhanced through the deployment of information communication technology. Training on effective collaboration and communication systems with internal and external stakeholders should be conducted. Because many of the REAs function without adequate resources (e.g., funds, equipment, and personnel), resources and financial difficulties should be sorted out by levies, which require the project proponent to pay for essential services.

11. Enhancing human resources capacity development

EIA requires substantial human resources, both on the side of the consultants who prepare the EIA reports, and on the side of the reviewers of the report. The number of adequately trained people required to develop and implement EIA policies, programs, and projects and to follow up EIA processes do not currently exist in the country. Human resource capacities must be strengthened, and human resources capacity development should be related to staff competence, skills, knowledge, attitudes, accountability, and integrity. Devising appropriate and sufficient positions within an organization's structure, recruitment of appropriate staff with a balanced gender mix, awareness-raising, education, training, learning-by-doing, and peer learning should be encouraged. Staff could be attracted and turnover reduced through appropriate incentive packages. Sanctions on individuals who do not perform well should be imposed based on norms and standards and improve individual performance through better human resources management and development.

12. Improving the EIA process

Given the weaknesses and challenges in the Ethiopian system, there are certain suggestions for improving the practice of EIA to achieve the broader objective of protecting the environment. These suggestions are discussed in the following sections.

13. Clarifying project screening criteria

The draft Ethiopian EIA guideline (EPA, 2003) provides a list of the types of activities or projects that will require an EIA. International practices show that if the possible impacts of a project are not known, a preliminary environmental assessment is prepared to determine whether

the project warrants an EIA. There is an urgent need for clarification of screening criteria, particularly for those projects that were not categorized under table 6.3.

14. Scoping as a mandatory process

Scoping, which usually involves the public and other interested parties, identify the key environmental issues that should be addressed in EIA. This step provides one of the first opportunities for members of the public or NGOs to learn about a proposed project and to voice their opinions. During scoping, the Terms of Reference for the EIA will be prepared. As noted previously, the Terms of Reference provide a roadmap for EIA preparation and should include the issues and impacts identified during the scoping process. In the Ethiopian EIA system, scoping is usually not considered in most cases. It is, therefore, recommended that scoping activities should be seriously considered, supported by legislative reform, and form an integral part of the EIA system.

15. Public participation

Best EIA practices involve and engage the public at numerous points throughout the process with a two-way exchange of information and views. Public participation may consist of informational meetings, public hearings, and opportunities to provide written comments about a proposed project. However, there is little or no public participation being undertaken in the current EIA process. The constitutionally guaranteed rights of the people to participate and be consulted in any development activity that could affect them must be realized in its full sense at all stages of the EIA process.

16. Manage baseline data

One of the uncertainties in EIA prediction is the lack of reliable and accurate data. A common data base should be organized where all relevant agencies may pool their data. These data could be made available to project proponents upon request. A fee may be charged for these data, with the money used to upgrade the data bank. Sectoral agencies should also prepare annual reports about the state of the environment to establish a database of reliable baseline information for the specific sectors.

17. EIA reports

The EIA reports present factual information relating to the nature of the development project and all of the information gathered during the EIA, including the baseline study, impact prediction and assessment, content and amount of pollutants that will be released, and proposed mitigation measures. It should also contain procedures for monitoring and auditing during implementation and operation of the project. An EIA report is also often required to include a non-technical summary for those who do not wish to read detailed documents. As EIA reports are public documents intended to inform the public, the non-technical summary is very important.

18. EIA report review

Review can take a number of forms: it may be purely an ad hoc process, whereby the document is read and commented on by decision makers; the process can be more formalized, with expert opinions sought; or it can involve the use of formal review methods designed specifically for that purpose. For the best results, the use of a one-expert review system should be abandoned, and the public should be engaged in the review process to the extent practicable. The reports should be reviewed by a panel randomly drawn from a database of experts. Furthermore, the environmental agencies should ensure that EIA reports are made available to the public for comment, and that public comments should be received before a final decision is made.

The governmental environmental agencies should also translate and post the relevant information using printed media, newsletters, leaflets, and/or booklets for those members of the public who are literate. To reach the illiterate members of the community, it is important that other forms of mass media be used. These could include public debates, public enquiries, use of visual aids, bill boards, television programs, theatrical shows, and radio broadcasts.

CHAPTER 7

7.1. Conclusion

In conclusion sustainable development as an organizing principle for the growth and development aspiration of the country has been operationalized in Ethiopia. Sustainable development as a concept has its peculiar political and economic philosophical underpinnings which has pushed reforms in many policy spectrums. Therefore studying the concept requires a careful understanding of the underlining philosophical assumptions in order to understand and conceive the problems and challenges associated with the implementation of policies and regulation derived from these.

Development and growth aspirations in Ethiopia are a necessity in transforming the country from the state of current conditions to a better and sustainable future. But doing so has necessitated for efforts to be geared towards protecting and management of the environment where production and livelihood of the Ethiopian population is strongly aligned. In addition to the necessity in resource need for extraction and development of the same for industrialization, there are pressures and drivers for the change to take in to account without which the planning and implementation of development aspirations will be flawed. Population and demographic conditions, state of the environment where the population livelihood is aligned and institutions and laws governing relationships and being constantly shaped and modified by the demands putts by these pressures. In this study is identified that there are issues which are putting pressure for the environment to be integrated and mainstreamed in sectoral ministries and cross sectral ministries of FDRE. These are Deforestation and soil degradation, soil erosion and land degradation, water scarcity, biodiversity loss and pollution issues and these issues are links to the overall economic activities such as transport, industry, urban housing and construction, water and energy and agriculture.

In order to ensure environmental rights enshrined in the constitution the government has issued policies laws proclamation and international conventions. But these did not assure the successful integration of environmental policy in to other areas by that assuring the principled priority requisite that the environment is meant to assume. The following are some of the factors handicapping EPI in Ethiopia in general; Skewedness towards quick economic achievement;

Weak and unstable institutions at the Regional levels; Absence of Sectoral Environmental Units in the Federal Sectoral Institutions; Lack of adequate infrastructure and skilled human resource; Weak environmental legislations enforcement capacity; Financial limitations; Absence of functional linkages among and between various state and non-state actors; Lack of environmental awareness and limited integration of environmental issues in formal education; Inadequate environmental information and lack of environmental information system and networking; Absence of environmental accounting systems in the National Income Accounting of the country or regions; and therefore inability to express degradation of environmental capitals in monetary terms; Lack of awareness on environmental investment opportunities among the private sectors; Poor capacity in identification and acquisition of appropriate technologies, absence of research and development programs to solve local environmental problems and environment - livelihood challenges, absence of dissemination of appropriate environmental technologies and best practices; and Poor implementation of punitive and incentive measures enshrined in different environmental instruments.

7.2. Recommendations

Taking into consideration the key problems outlined under the conclusion, the following recommendations are made.

Promoting environmental awareness in general and specifically on environmental and related policies, existing action plans and sustainable development issues at all levels; Establishing and/or strengthen the regional environmental agencies and sectoral environmental units; Strengthening the federal and establish and/or strengthen regional Environmental Laboratories; establishing Ethiopian Environmental Information System and Networking and establish environmental monitoring mechanism; Developing and implementing human resources development program; Strengthening national environmental policy and strategy coordination mechanism; Strengthen measures to integrate environmental concerns into formal, informal and non formal education systems; Initiating environmental accounting and subsequently integrate it into the national income accounting system; Promoting Eco-investment and market based strategy to environmental protection will help in achieving the necessity required for making the environment a prerequisite for every development endeavor there from.

In addition to these promoting environmental research and development and build capacity for identification, acquisition and dissemination of appropriate environmental technologies and practices; implementing and /or develop appropriate incentive measures to enhance enforcement of environmental policies and legislation; developing the enforcement capacity of federal and regional environmental agencies promote community empowerment to enhance their participation in setting local environmental agendas and to implement priority actions and pushing the integration effort from above and aligning strategically middle level and lower level political organizational activities will strengthen integration imperatives.

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