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Environmental Management System: During Imperial, Derge and EPRDF Periods in Ethiopia: Review Paper

Chala Dechassa
Collage of Business and Economics Wollega University, Post Box No: 395, Nekemte, Ethiopia
*Author to whom correspondence should be addressed; E-Mail: cdechassa@yahoo.com

Abstract
Before World War II was considered as "Dark Age" of environment in Ethiopia. Even if some researcher identified the awareness of environment was during the Minlik II regime with the growing fuel wood crisis and became public officials increasingly convinced of the need for state protection of the country's forests and forest resources. Greater emphasis given after www II during the 1960's. It is deemed to be the result of misguided and unregulated modification of the Ethiopian environment, in particular the vegetation, soils and natural ecological processes, increased human and animal population, has led to their fast depletion and serious environmental degradation. And has been and still is beyond their "self-replicating capacity".This paper briefly reviews the environmental management during imperial, Derge and the current periods in line with the environmental concerns and policies and economy. Ethiopian environmental concerns in the 20th century were poor. This was due to donor driven environmental advisees and policies, the ignorance of the indigenous knowledge of the local community, top –down approach of the policies and legislation without the consent of the farmers and the community at large. The imperial period famine, the food for work approach of the Derg, villegization, collectivization and for example exacerbates the environmental degradation. There has been no land tenure security in Ethiopia. However, the current Ethiopian government undertakes the land registration that maximizes the user's right. After Kyoto protocol, Ethiopia explicitly recognizes that environment is a vital and important pillar of sustainable development and incorporates in the development planning like the CRGE documents (which emphasis on mitigation than adaptation) to reduce the effects of climate change on water, forests, climate change, and biodiversity conservation for sustainable use. In addition, the economic appraisal of development projects, the costs of environmental and natural resource benefits forgone as a result of the projects' activities are started to included in the calculations through environment policy and environmental impact assessment of for development projects and enacted policy, laws and establish institution to the managements of environments. However, the concern of environmental management is global and unanimous agreement among developed and developing countries.
Keywords: Environment Management System, Environmental Paradigm, Climate Change, Adaptation, Mitigation, CRGE, Ethiopia

Introduction

1. Historical Evolution of Environment and Development –Overviews

In the eighteenth century and the late 1940s the prevailing viewpoint in the West was that Nature was to be studied, catalogued, tamed and exploited, and that the Earth was virtually limitless and resilient. The frontier was still 'open', with land to settle and few signs of environmental stress, other than localized pollution and some loss of biodiversity. The outlook, still not fully altered, was essentially mechanistic – that Nature was relatively easy to understand, model and control – and there was little awareness of the complexity, vulnerability and limitations of the Earth's ecosystems (Barrow, 2005)

Relatively speaking the importance of natural resources management has acquired recognition only recently. In the 1960s attitudes began to change, interest in environmental issues has increased; some refer to this as an 'environmental movement', but the label 'environmentalism' is widely used for it (Barrow, 2005). From the late 1980s there has been worldwide recognition Sustainable development had become a prominent part of environment and development discourses by the twenty-first century, and various authorities have noted that it is a concept that helps integrate environmental management and development management (Barrow, 2005).

Lately, environmentally sensitive development could be emanated with the concept Nature provides to the optimum, and maintenance of that use indefinitely, avoiding ecological or social breakdown, in order to maximize human well-being, security and adaptability. The concern at first was seen as a purely conservationist movement and later it was seen as an issue of development and sustained development at that. It reached global dimensions by 1972 when the Stockholm Conference on the Human and Environment was held (*Shibru and Kifle, 1998).* This demands high-quality management of the environment and human institutions, and the ability to recognize and avoid, mitigate or adapt to socio-economic and physical challenges and gradual unfavorable changes (Barrow, 2005). Environmental management goes beyond seeking sustainable development; it also promotes improvement of human adaptability, the recognition and reduction of threats to people, biota and the physical environment, and rehabilitation of degraded ecosystems.

In Ethiopia, the first expressions of public concern for the environment comes from the latter years of Menelik's regime with the growing fuel wood crisis at the time both the Emperor and public officials became increasingly convinced of the need for state protection of the country's forests and forest resources. The then Ministry of Agriculture, was established in 1908, given a strong environmental role primarily due to the recognition that the loss of environmental resources impacts. Consequently, the Ministry were promoted good farming practices and increased agricultural and livestock production, disaster monitoring and prevention (drought, pandemics, and livestock disease); and, environmental protection (Dessalegn, 2001). Environment[1] is the natural resource base that continues to provide the peasant a wide range of livelihood assets and benefits from the biodiversity as an environmental resource.

2. Objectives of the paper

2.1. General objectives

The main objective of the paper is the environmental management system in Ethiopia during imperial, Derge and the current periods in line with the environmental concerns and policies and economy.

2.2. Specific objectives

- To assess the global and Ethiopian environmental problems
- To assess the Biodiversity, Ecosystems and Environment in Ethiopia
- To investigate the Environmental Paradigm and Its Implication to Environment Management during the Imperial, Derg, EPRDF periods.
- Investigate the Environmental Management System during the Imperial, Derg, EPRDF periods in line with their policies and strategies.
- Finally, Analyzing Climate Resilience and Green Economy, Climate Changes and its impacts on the economy and the Ethiopian International agreements on Environments Management system.

3. Global Environmental Problems

Environmental impacts rose from the civil technology developments as well as from developments and applications of military technology, whether conventional, nuclear or radiological, they all belong to the global problems. In the past 50 years or longer, chemical, biological, radiological, and nuclear weapons have been developed and applied in some part of the world. In all these areas, health, economical and ecological problems still exist [http://www.mindfully.org/Nucs/2004/DU]. The main environmental concerns globally are: Global Warming, Deforestation and Greenhouse Gas Production, Persistant Organic Polluants (POPs), Tran boundary Movements of Hazardous Wastes, Atmospheric Pollution from Civil and Military Air Craft, other gases (methane, carbon dioxide, nitrogen oxide, sulphur dioxide etc.), Wreck of old Satellite and Rockets, Radioactive Waste Disposal, Chemical and Radiological Weapons. However, the Kyoto protocol, Stockholm Convention has to be examined that the global warming and organic pollutant are due to climate change and uncontrolled organic pollution. http://irptc.unep.ch/pops/, and http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/02/120].

4. Environmental Problems in Ethiopia

The environmental problems in Ethiopia are similar to those developing countries and also to countries with economies in transition. Environmental problems of any country have to be analysed and distinguished between problems, which arise from global pollution or emission through manmade exploitation of the biodiversity. In Ethiopia, the majority of the population live in the rural areas where land cultivation and agriculture is the main subsistence. In addition, as a result of population increases, increased crop cultivation in marginal areas and increased livestock grazing pressure have also contributed to increased deforestation and soil erosion in the central highlands(Gedion, 2000].

In Ethiopia, during the second half of the 20th century, the country has experienced severe deforestations and degradation. It is estimated the annual rate of deforestation to be 150,000 to 200,000 hectares annually. The major drivers are agricultural expansion, unsustainable harvest for timber and fuel wood extraction (EPA, **2012**). i.e. due to anthropogenic impacts. Pristine nature existed before human interference. Obviously, when human numbers were few their impact did not exceed the carrying capacity of the natural resource base. As human numbers increased, however, there were less and less natural resources to be utilized on a sustainable basis, and an overexploitation and mining of resources had to occur in order to satisfy more and more people with less and less resources(*Shibru and Kifle , 1998)*.

Consequently, Soil erosion and degradation remains one of the most critical and far ranging

[1] proclamation No.9/1995, the concept Environment got wider definition and includes the protection of land, water, air and similar environmental resource factors and condition which affect the life and development of all organs including human beings; the definition is broad enough to include all natural and manmade resources (Girma Hailu, 2000).

environmental issues affecting the country. In the forested areas of the South and South West, deforestation is occurring at a sustained rate with major forestry threats including resettlement, commercial farming and fire. In the eastern and southern lowlands, commercial agricultural investments, rangeland enclosures, re-settlement schemes, charcoal production and the relentless expansion of very aggressive invasive alien species are having a profound and detrimental effect on the natural resources availability and livelihoods of the rural community (Jonathan Mckee, 2007) the main environmental problems in Ethiopia are:

Firstly, Soil Erosion, Land Degradation, Desertification, and Deforestation: In Ethiopia, have been observed since four decades. The deforestation in the country has several reasons. These are, the ever increasing demand for fire wood, cooking, building houses, bridges etc (building material) and the converting the forest area into agricultural fields to gain more appropriate farming area for crop cultivation [Gedion, 2000].

Secondly, Emission and Industrial Pollution. At beginning of 1980 local and foreign farm enterprise services started flower production for commercial purposes in Ethiopia and have brought great economical advantage in the last decades. From the flower exports to the European market, the country profits, billions of Eth.Br. or millions of dollars http://www.geocities.com/akababi/flower.htm]. However, to run the flower farms and make them fully operational, various types of chemicals and pesticides are applied to cultivate land coverage of the farm area. A huge amount of agrochemicals have been imported into the country for the flower export farming industries. These chemicals are hazardous, and are carcinogenic to human and pollute the environment [http://www.geocities.com/akababi/].

Moreover, In Ethiopia, Wonji, Wonji Shoa, Metheara and Akakai, mojo, Gelan, Dukem are industrial towns of the country. In Wonji and Metehara sugar production factories are residing. While, in Akaki Beseka small textile and metal industries are located. The river water is heavy polluted by the hazardous wastes generated from the industries and noise pollution. Excess chemicals and metals like chromium, nickel, arsenic, zinc, cadmium cobalt, copper, manganese and other toxic organic substances are present in Akaki River (http://www.telecom.net.et/ estc/Publication/Proceedi.htm) which primarily affects the health and the environment of workers and inhabitants of the towns respectively.

Thirdly, wildlife Reduction and Environments: The Ethiopia Wildlife had been reported as being seriously decimated. The reasons are: Professional hunting of some African safari group, mostly from overseas, Extensive hunting by the local people residing near to the national park area or close to the wildlife area, in most rural areas the farmers require land to be cultivated (Tewolde- Berhan, 1991). They deforest the area to plough land for agriculture. Without any hesitation, this brings the decimation of flora and fauna of the surrounding region. Especially agricultural land that have been cultivated in the National Park Area, The livestock of the farmers in the wildlife area unrest less and they chase away the wild animals from their living area. The livestock density results the degradation of natural resources and minimises the quantity of the wild animals and Resettlement programmes from one region to another could bring a threat to wildlife, provided the resettlement occurs close to the wildlife reservation area(Tewolde- Berhan, 1991) In Ethiopia, the biodiversity is treated in very awful manner. The destruction of natural habitat as well as a threat to the flora and fauna and other biological resources diminish the economy of the country. This affects the country's wealth and with it, the existence and the well being of the nation.

5. Biodiversity, Ecosystems and Environment in Ethiopia

Ethiopia is endowed with rich biodiversity. Ethiopia has over 6,500-7000 species of vascular plant (with 625 endemic species and 669 near-endemic species, and one endemic plant genus)((Tewolde- Berhan, 1991; Mohammed & Ababu, 2003), 860 avian species (16 endemic species and two endemic genera), 279 species of mammal (35 endemic species and six endemic genera), 201 species of reptile (14 endemic species), 23 species of amphibians (23 endemic species), 150 freshwater fish (6 endemic species) (YOUNG.J, 2012). But there are multiple biodiversity threats these are Habitat distraction and fragmentation (example, Ethiopian wolf, Walia ibex, black rhinoceros, wild dong, Nubian ibex, and mountain Niyala), protected areas are increasingly degraded. Land is being converted for subsistence's and commercial agriculture, timber used for fuel wood and construction. The loss of forests and other protected land is caused by a growing population, unsustainable natural resource management, and poor enforcement of existing legislation (Azmal Husen, 2012, EPA, 2012).

To counter these multiple biodiversity threats, Institute of Biodiversity Conservation (IBC) in partnership with farming communities has been working on biodiversity conservation. Consequently, the statement of the fact to conserve and sustain desired level of biodiversity seems simple but difficult to manage (Azmal Husen , 2012). This is due to biological and political issue with as many as it has advocates

6. Environmental Paradigm and Its Implication to Environment Management

The environmental paradigms in Ethiopia from the 20th century to 21 century has not be clear cut dichotomous in which one can observe the shift in environment and environmentalism. Theoretically there are five fundamental paradigms of environmental management in development, of human-nature relationships, are

described. From the primordial dichotomy of 'frontier economics' versus 'deep ecology'. paradigms of 'environmental protection', ' resource management', and 'eco-development' are evolving, in a progression which involves increasing, integration of economic, ecological, and social systems into the definition of development and the organization of human societies(Colby, M.E., 1991). This section discusses in details the Ethiopian environmental management system in relation to the paradigms.

6.1. Imperial Regime

The approach/paradigm prevailing in Ethiopia and most countries until the latter parts of 1960s, were frontier economics. It was, had a marked economic bias which was, in part, a result of the limited environmental awareness of policy makers at the time consequently, nature was treated as an infinite supply of resources to be used by humans, and a limitless sink for wastes. During this period it was believed that managing natural resource like forest and wildlife was to increase government revenue (Dessalign, 2001).

Consequently, managing the environment was more or less irrelevant because it was 'outside' economics. The attitude to pollution which was emanated from technology was usually not aware and if exist the assumption was to clean up later. For example in this regime Rights over timber harvests and other forest products, taxes on timber exports, payment for timber permits, and royalties, which the new forest laws made possible, provided additional revenue to the government.

After the mid 1960s the frontier economics outlook weakened as pollution and biodiversity-loss problems became apparent and as deep ecology supporters proselytized in the world. It was seen to be necessary to make trade-offs between development and environmental protection. In fact, it was only at the end of 1970's that the major donors began to be concerned and developed the tools like environmental impact assessment (EIA) in the Ethiopia as a remedial measures to counter environmental damage even if it was not executed. But, still Ethiopia fall into this category (Dessalign, 2003).

6.2. Derge Regime

The main elements of the conservation policy of the Derge were heavily biased in favor of physical structures which were constructed on- or off-farm using food for work (FFW) as an inducement. The paradigm seems shifted from the frontier economy to environmental conservation. In this periods Program implementation relied on a top-down approach, without careful planning, and foreigner's expert advises which refused to consider the merit of indigenous land user's conservation practices. There was hardly any effort to consult and involve the land user in any aspect of the program; it was imposed on a largely reluctant peasantry.

The Derge environmental thinking was the frontier economy and environmental conservation paradigms. Consequently the Derg implement the collectivization and villegizations taking the wrong advice of the expatriate resettled the community from the northern parts of Ethiopia to the south western part which was new frontiers to the settlers. Consequently the resettled community starts to degrade the land and deforest the forest for farms and fuel consumption. The assumption was to maximize the agricultural productivity to feed the urban community without considering limited natural resource. The primary concern was limitations imposed by availability of labor & capital and Environmental problems as we know them are absent (Dessalign, 2001).

6.3. Current Regime

During EPRDF the main paradigm utilized as an ideology to the environment are frontier economies, resource managements and Eco-development. The frontier economics tradition is not yet relaxed in this 21th century in which Ethiopia. It have been still applying through the voluntary resettlement to the south west part of Ethiopia where the area is more productive areas for food security and drought problems. According to Lester Thurow (1980), "worries about natural resource exhaustion are hard to rationalize from the point of view of economics." nature is seen in this paradigm as existing for man's instrumental benefit, to be explored, manipulated, exploited, modified, and even 'cheated' in any way possible that could improve the material quality of human life (White, 1967). But the impact and sustainability of environment and development have been questionable.

The resource management paradigm on other hand, which is might be termed 'evolutionary', rather than 'revolutionary' are also ideologically accepted in the EPRDF as environmental paradigms. The basic idea is to incorporate all types of capital and resources - biophysical, human, infrastructural, and monetary - into calculations of national accounts, productivity, and policies for development and investment planning. Climate and the processes regulating it are coming to be regarded as fundamental, vital resources to be managed under this paradigm. As a result, several new initiatives in global commons law and agreement have taken hold, with several more possible (Colby, M.E., 1991).

Starting from the early 1980's to this periods the Eco-Development paradigm have been followed as a principle in Ethiopia "The existence of tradeoffs between environmental management and economic growth cannot be denied, but their pervasiveness and intensity have been overrated, to the detriment of a search for the best of two work."(Riddell, 1981). i.e economizing the ecology and environmental sustainability.

Eco-development attempts to incorporate the social equity and cultural concerns raised in the various schools of deep ecology. Greater recognition is given to indigenous knowledge and experience in the management of the environment. The main environmental paradigm in Ethiopia currently are: the frontier

economy, the resource management and the eco- development The deep ecology paradigm was hard to be followed in the context of population pressure and demand for subsistence.

7. Environmental Management System during the Imperial Regime

The period immediately before the Second World War and the historical period extending far back in time before that, however, are considered as the "dark ages" of environments. But Since the Second World War, successive governments in Ethiopia have, with varying degrees of intensity, made attempts to address environmental issues.

7.1. Land policy during the imperial regime

Historically, in Ethiopia the north-south regional distinction was reflected in land tenure differences. The patter n of land tenure policy and property rights farmers have held are basically dependent mainly on policy exercised by the regime (Crewett & et.al. 2008). The question of environmental cannot be examined adequately without looking at land tenure issues. During the imperial regime the land tenure types refer mainly to the imperial administrative classification which is commonly distinguished between communal (rist), grant land (gult), freehold, or sometimes referred to as private (Gebbar tenures), Church (Samon), and state (maderia, mengist) tenure regimes. This type of land tenure system accommodated by the Ethiopian empire is described as one of the most complex compilations of different land use systems in Africa.

It was a time when more than 70% of the fertile land was owned only by 1% of the property owner of the entire population in Ethiopia (Crewett, & etals, 2008). In this period the policy promoted an insecure tenure system and discouraged both tenants and owners from making long term investments on the land in both tenancy and rist areas, in this periods there was no guarantee. Security of tree tenure was not clearly recognized in law, and customary rights were increasingly losing their force with the greater centralization of political authority by the imperial state. Indeed, customary rights over common woodlots had long fallen into disuse, and such woodlots had often been claimed by powerful landlords.

7.2. Forest policy and environment during the imperial regime (1889-1974)

In 1928, during the Italian occupation, there is an attempt to identify the location of the country's forest resources and concerned with what may be called "economic forests", rather than forests in general, i e, forests that contain valuable agricultural products such as Gesho (Rhamnus pnnoides), coffee, etc. found in Harrar and Arussi , coffee forests in Bale, Sidamo, Janjero, Illubabor and Goma awrajas. The forest was not protected, it was regularly misused and the resources in it wasted. Anyone could freely harvest coffee and other products at any time. The assumption here is that a natural resource that has no owner is liable to be abused. Consequently, the issue of ownership is in forest management get emphasized as dual system of forest ownership. Forestlands which can be proved to be the property of local balabats should be under private ownership but resources are carefully managed and properly utilized (Dessalign, 2003).

Forests which do not have legal owners should be under state ownership, and should be protected and their utilization strictly regulated. The forests are considered to be valuable economic resources and hence they ought to be properly protected Ownership is important in forest management, and the state should be responsible for all forests not under private ownership. The farmer should be encouraged to plant trees on his land but no guarantees of ownership. But it was believed that the loss of forest cover will lead to drought and desertification and would have a harmful effect on springs and sources of water. Thus, the environmentalism of the period was marked by a strong sense of pragmatism, and faith in state ownership and government action (Dessalegn, 2001)

But, modern forestry activities began in Ethiopia (1936-1941), as noted in Dessalegn, 2001, indicates that the overriding forestry policy of the administration was to conserve, develop and utilize the extensive forest resource of the Empire. The document emphasized the need to promulgate strict disciplinary regulation that would enable rational utilization of the resource considering the land policy and customary right of the people. Five years after the Italian occupation in May 1941, the imperial government returned to power and from 1942-1967 different directives, orders, regulations and laws related to land grants were issued. In 1965 three forest laws namely, State Forest Proclamation No. 225, to conserve, protect, develop and utilize forests under State ownership, Private Forest Conservation Proclamation No 226 where forests, not owned by the State, as "Private forest" and Protective Forest Proclamation No. 227. The main rationale behind the legislation was the conservation of the soil, water, control of floods, desertification, preservation of fertility and beauty of the country included any land, regardless of ownership, which the Ministry of Agriculture might find to be indispensable. There was no forest policy that mainly emphasis on the use, benefits and protection of forest for the sustainable environment management (Dessalign, 2003).

Following the promulgation of a series of forest legislation, extensive deforestation took place, this time despite the efforts of the government to put a stop to it. The reason was the legislation placed all large forests under state ownership, and put severe restrictions on the use and management of private forests to most people and denying individuals rights of access to forests. This resulted in deforestation as a form of protest (Dessalign, 2003). The imperial state laid claim to all "unutilized" land, land that had no "legal" owners, and all forests, lakes and river systems. The designation of "unutilized" land or land without legal ownership was a

cause of friction between communities and the government all through the life of the imperial regime. Hence, the imperial government had limited attempt to promote forestry in the country and protect the environment that result from the deforestation and land degradation due to centralized policy that do not involve the people of the rural Ethiopia. In general, it is possible to say that state natural resource policy was responsible for aggravating the process of land degradation.

7.3. Environmental Policy: Ideas and Justification, strategies and measures

Until the second half of the 1960s, conservation was understood in a different sense from what it came to be in the 1980s. First, it was taken to mean the preservation of wildlife for tourism development, Secondly; conservation also meant the preservation of the country's historical heritage the protection of antiquities. Thirdly, conservation gave impetus to the protection of the country's forests and few steps were taken to encourage tree planting, protection and to bring the country's forests under state ownership through legislation of mid-1960s (Dessalegn, 2001).

From the last quarter of the 1970s, conservation programs in Ethiopia have been donor driven certainly, FFW, USAID and later by World Food Programme, the European Community and other major donors as wells as NGOs, has determined conservation policy and programs. However, in the process, immense resources have been wasted, and state-sponsored conservationism has acquired a bad reputation among the farming population (Dessalegn,2001)due to the fact that the policy of conservation was top down approach and donor driven than considering and participating the indigenous knowledge of the rural community in Ethiopia. The regime concerned to two areas to protective measures, which however had contradictory results. The first was wildlife conservation. The country's extensive fauna includes a number of rare endemic species, which were thought to be threatened with extinction by large-scale hunting and habitat destruction. With the support of UNESCO and expatriate technical staff, several national parks and game reserves were set up in various parts of the country in the second half of the1960s and the early 1970s.

However, the schemes were restrictive and had a damaging impact on the livelihood of the people who lived in and around them no person was allowed to reside in the schemes, nor cultivate or graze the land, cut trees, or hunt game. The local population whose customary rights of access to the resources were thus shortened, and which did not benefit in any way, was angry of the government's measures. Consequently, over the years, there was a good deal of illegal hunting and poaching activity in several of the conservation areas, many of the families living inside these areas resisted relocation. Expatriate advisers proposed resettlement as a long-term solution (Blower 1969, Turton 1987) ignoring the negative impact of resettlement which result in failure.

The second area of concern was forest protection in the mid-1960s, after well over a decade of unsuccessful effort; with a series of forest legislation to enlarge the area of forest under state control. In a country where claims to land or forests were not backed up by title deeds but determined by customary rules, only the well placed could claim ownership to forestland Moreover, the legislation placed a variety of restrictions on the utilization of private forests. These forest laws were greeted with fear and suspicion on the part of the peasantry, and there were widespread acts of covert protest (Dessalegn, 2001). Generally, the main objective of the forest legislation was not so much to promote resource conservation but rather to enlarge the sources of state revenue

8. Environment and Environmental Policy during the Derg

Following the overthrow of the imperial regime in 1974, the revolutionary government launched a number of wide ranging reforms aimed at restructuring the rural economy. The most far-reaching was the radical land reform of article 31/1975 which confiscated the property of the landed classes, placed all land, including all forests under public ownership, and distributed land to peasants organized in Peasant Associations. Land reform extinguished private as well as customary ownership of land and forests (Crewett, & etals, 2008).

8.1. Land policy during socialist periods

The socialist/ Derg/ regime, profoundly altered the agrarian structure and the mechanisms of access to land. The "Public Ownership of Rural Land Proclamation" nationalized all rural land and set out to redistribute it to its tillers and to organize farmers in ***cooperatives,*** thereby abolishing exploitative landlord-tenant relations so pertinent under the imperial regime. The major changes brought about during the Derg regime were "agrarian socialism" including the quest for forced villegization (putting rural farmers at one spot in respective of their resistance), forced resettlement (moving farmers from one region, mostly the north, to another, mostly the south) to new frontiers aiming to reduce poverty, famine through increasing agricultural productivity. However, the Derg regime failed to increase agricultural productivity with its agrarian reforms due to the fact that Tenure security under the *Derg* was clearly limited. Consequently, environment management and environmentalism was limited or not the concern.

In conclusion, as Dessalegn observed, the history of Ethiopia during the Derg regime had been partly recorded as a history of growing rural poverty, food shortages, famine, and escalated rural insurgency and civil war.

8.2. Forestry policy and law policies 1974- 1991

The nationalization of all lands including forests, the 1975 land reform brought some significant contribution to the forestry sectors. The Protection of forests and establishment of plantation, Forestry training were established. The government as well as donor agencies started to provide financial and technical assistance to the sector. Melaku (2003) noted that the military regime was often praised for its forestry commitment in terms of allocating more finance, trained human resources and creation of a relatively sizeable organization compared to the imperial and the current governments of the country.

Melaku (2003) underscores that all rural land was nationalized without compensation and made "collective property" of the people with the abrogation of all feudal obligations. Private ownership of rural land was prohibited, and the size of land for a household was limited. Land transfer through sale, mortgage, lease, inheritance was made illegal and large private commercial farms were to be reorganized as state farms or allocated to tillers. The forests were declared the property of the state and management responsibilities were shifted from the community to the government. As a result, peasant and households living in and near the forest livelihoods was threatened. Lately, many of the forests in question were enlarged by expropriating farmland and pasture by surrounding peasantry, which was not allowed to graze its animals in them, nor cut grass or wood, forest personnel provided no material or technical support to peasants who wished to establish their own woodlots.

Generally, as a result of the 1975 land proclamation nationalized forests and made state forests or the community or more specifically of the peasant association (PA). These community trees were never really accepted by the people as being their own as most of the forest trees were common pool resources (Melaku, 2003) there was no clear cut forest policy during this regime besides its attachment with nationalization of land policy. Therefore, people were ready anytime to take illegal advantage before somebody else did so.

8.3. Environmental policy, ideas, justification

The main elements of the conservation policy of the Derg was heavily biased in favor of physical structures which were constructed on- or off-farm using food for work (FFW) as an inducement, Program implementation relied on a top-down approach, and there was hardly any effort to consult and involve the land user in any aspect of the program, it was imposed on a largely reluctant peasantry. Since, the land policy created a high degree of tenure insecurity, and peasants were suspicious that government intervention in land matters would lead to the loss of holdings, Policy makers and conservation agents on the ground refused to consider the merit of indigenous conservation practices. In addition, Conservation work was undertaken without careful planning, and the idea of benefit sharing in which the land user, the community as well as the government could share the benefits of an environmental asset was alien to policy planners.

Later on, in the early 1970s, donor agencies such as USAID and WFP initiated food-for-work (f-f-w) schemes for conservation purposes. The Derg placed particular stress on the underdevelopment of peasant agriculture and the backwardness of farm technology, while in contrast the technical experts were strongly neo-Malthusian and saw the demographic factor as the most significant cause of land degradation. Behind the Derg's "backwardness" argument lay chief justification for collectivization was that agricultural development would not be possible on the basis of smallholder production, and that peasant agriculture inhibited the introduction and utilization of modern technology (Dessalegn 1993).

The Derg's conservation program placed heavy emphasis on the construction of bunds and terraces, which were believed to be effective measures against soil erosion. But due to inadequate planning and management, and because of the food aid factor, far too many bunds and terraces were built than necessary not infrequently; bunds were built on farm land without the wish, participation or even knowledge of the owners of the land (Kebede 1993). Consequently, the Derg senior government officials began to be seriously concerned about the deficiencies of the conservation program and the damaging effects of the f-f-w approach that f-f-w had undermined the causes of environmental rehabilitation. At the end of the 1980s, a new conservation strategy was drawn up; once again through the initiative of western donors without sufficiently examining the experiences of the past. But Derg regime collapse shortly (ONCCP 1991, IUCN 1990).

In conclusion, Conservation program of the Derg ultimately failed not just because of its misguided policies and undemocratic ways but also because it was resisted, now passively, now actively, by the peasant population.

8.4. Environmentalism of the state and the Environmentalism of the peasants-Contradiction

8.4.1. Environmentalism of the state

The underlying assumptions of state environmentalism were the state was considered the guardian of the country's natural resources, and the primary emphasis was the protection of these resources rather than their utilization. Environmental protection involves bringing natural resources under state ownership or control and it was the responsibility of the state to choose the appropriate conservation technology and "transfer" such technology to the population concerned. However, this could lead to a "unilateral" course of action, and an undemocratic in which, Conservation was frequently restrictive and exclusionist measures for benefit sharing

were rarely incorporated in policies and accounting the interests of the rural land user through consultation. The objective of soil conservation, for instance, was merely to control erosion and not to promote the sustainable utilization of the land. Moreover, the Derg policy on Collectivization, villagization and resettlement, which were carried out on a large scale in the 1980s, were accompanied by extensive deforestation and soil erosion the radical land reform of the post- Revolution period undermined security of holdings and discouraged peasants from investing on the land or employing conservation measures.

8.4.2. The Environmentalism of the Peasant

Peasant farmers are not keen on the mere protection of natural resources such as forests, pasture and water sources, but rather prefer their sustainable use. They do not ignore the destruction of such resources if it affects their livelihood. For peasant environmentalism is the issue of access to and control over basic environmental goods, which traditionally such management was undertaken in a variety of ways:- local resources were managed through community authority structures which were responsible for enforcing rules and regulations; such forms of indigenous local governance have all but disappeared in most parts of the country at present and management by religious sanctions or community convention is also an old tradition. Moreover, religious institutions had a much greater role in the protection of forests and water sources, but this role was undermined by the process of political change underway since the 1950(Tahal & et al. 1988; Dessalegn 1991). However, successive agricultural and tenure reforms have undermined traditional farming practices, and this has weakened the conservation element of land husbandry.

In conclusion, the two forms of environmentalism -that of the state and the peasants confronted each other against a backdrop of increasing natural resource loss and scarcity. And as a result of Derg's land policy deterioration of traditional land management practices were causing the problem.

9. Environment and Environmental Policy of the EPDRF Periods

9.1. EPRDF land policy and environments

Research and studies in Ethiopia show that insecurity of land tenure restricts rights in land, reduces incentives to productively invest in land, and limits transferability of land. These interns pose significant constraints to agricultural growth and natural resource management. The regime announced the continuation of the land policy of the Derge and the new constitution of 1995 approved and confirmed the state ownership of land in Ethiopia. The present Ethiopian government continues to advocate state ownership of land whereby only usufruct rights are bestowed upon landholders. The usufruct rights exclude the right to sell or mortgage the land. The reason was to protect the rural peasants from selling off their land to wealthy individuals leaving them landless and without source of livelihoods.

The government builds its argument on two principles: (1) justice understood as social equality - guaranteeing every farmer in need of agricultural land equal rights of access to such land, and (2) historical justice - granting tenure security to the Ethiopian farmers who had experienced land deprivation and land expropriation through different mechanisms during the imperial era (Crewett, & etals, 2008). But, recently, the government of Ethiopia recognizes that land tenure insecurity in Ethiopia was indirectly contributing to environmental degradation; consequently, the government of Ethiopia taken important measures to implement a land certification program aimed at increasing land tenure security. It is however too early to assess its potential impact on levels of productive investments on environmental degradation.

9.2. Forestry policy and law 1991-today

Soon after the fall of the military regime in 1991, the policy shift that was made by the transitional government of Ethiopia encourages the private sector and significantly contributes to the free uncontrolled exploitation of forests. Melaku, 2003 explained that when the State's coercive structure was relaxed in 1990/91; the peasant communities took their "revenge" on the adjacent State property, including forests. This turned the forest into a near open-access resource, into non-property. Forest resource abused as a result of unprecedented power vacuum in 1991.

Then after, the Ethiopian Constitution of the FDRE clearly stated that land and natural resources including forests are the property of the Ethiopian people and the state. However, it is not clear how and who will manage these resources. All natural resources are not available for private ownership by law. This leads farmers to convert forest land to farm land through various measures because once land is not covered with forest then it is possible to obtain use right. latter, In the 1990s, government focused on generating information on the forest resources, strategic planning and establishing policy framework for sustainable development and the government also created spaces for NGOs' engagement in sustainable forest management, through participatory forest management (PFM) practices. Consequently, Oromia regional state has established forest enterprises with a supervising agency in 2007, and restructured it as "Oromia Forest and Wildlife Enterprise (OFWE)" since 2009. The Amhara Regional State also followed suite and established the Amhara Forest Enterprise in 2011(FDRE, EPA, **2012).** However, Forest policy and related issues and land tenure insecurity are the major problems that affect the progress towards sustainable forest management in Ethiopia.

9.3. Environmental policy, ideas and justification

The Constitution adopted by Ethiopia in 1995 provides the guiding principles for environmental protection and management in Ethiopia with The ideas of the Right to Development identifies peoples' right, Environmental Rights to all people stated and are preserved in article 43, 44 and 92 of the Constitution of GOE respectively. Then environmental protection policy of Ethiopia was approved by the Council of Ministers in April 2, 1997(FDRE, MUD, 2008, EPA, **2012).**

9.4. Ethiopian Environmental Policy Principles

The Ethiopian environmental policy has contains three environmental principles to safeguard the environment from the environmental degradations. These are:

Precautionary principles: Rio declaration 1992, principle 15 "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (FDRE, EPA, **2012)** The precautionary principle according to Kriebel& et al., 2001 contains: 1. taking preventative action in the face of uncertainty; 2. shifting the burden of proof to the proponents of a development; 3. exploring a wide range of alternatives to try and avoid unwanted impacts; 4. Increasing public participation in decision making.

Polluters pay principles: Over the last 30 years or so there has been a shift from 'develop now, clean up later' to 'avoid causing problems'. In which the burden of problems being borne by those affected, to it being shouldered by the public in general, but, according to Principle 16, Rio Declaration "National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution." (EPA, 2012). However, Penalties for pollution are still often hard to enforce and relatively light, especially in developing countries. **Life cycle treatment of wastes:** Policy elements which have link with clean fuel use are: Energy resources, renewable energy sources and reduce the use of fossil energy resources and control of Hazardous Materials and Pollution from Industrial Waste (FDRE, EPA, **2012)**

9.5. Basic Environmental laws in Ethiopia

There are some basic environmental laws that the government of Ethiopia implemented to enforce on environmental management. These are discussed as follows:

Institutional setup –proclamation # 295/2002 establishes the organizational requirements and identifies the need to establish a system that enables coordinated but different responsibilities of environmental protection agencies at federal and regional levels. The Proclamation indicates the duties of different administrative levels responsible for applying federal law. Depending on the decisions made, resources available and specific organizational situation in each Region, Regional States have allocated responsibilities and duties to woredas, and kebeles(FDRE, MUD,2008)

Environmental Impact Assessment (EIA) proclamation # 299/2002 makes EIA a mandatory requirement for the implementation of major development projects, programs and plans. The Proclamation is a tool for harmonizing and integrating environmental, economic, cultural, and social considerations into decision making processes in a manner that promotes sustainable development (FDRE, MUD, 2008).

In addition, Pollution Control - proclamation # 300/2002 aims to mitigate pollution as an undesirable consequence of social and economic development activities. The proclamation needs to be observed for effective EIA administration. The Environmental Policy of Ethiopia has given due emphasis to the control of hazardous materials and pollution from industrial wastes, and adopted the "polluter pays" principle while endorsing the precautionary principle.

The government has passed various laws to control pollution, such as the EIA and pollution control laws including Council of Minister's regulation to prevent industrial pollution in 2008(FDRE. MUD, 2008). Furthermore, Proclamation 513/2007, Solid Waste Management aims to promote community participation in order to prevent adverse effects and enhance benefits resulting from solid waste. It provides for preparation of solid waste management action plans by urban local governments (FDRE, MUD, 2008)

9.6. Climate Resilience and Green Economy and Climate Changes

Right after the 1992 Rio Conference, Ethiopia finalized a National Conservation Strategy (NCS) followed by an environment policy in 1997 that encapsulated sustainable development principles. Since 1992 Ethiopia has instituted a series of medium to long term plans and focused policies such as the Agriculture Development Led Industrialization (ADLI), Poverty Reduction Strategy Paper (PRSP), a Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) 2005/6 - 2009/10/. In 2010 Ethiopia unveiled a Growth and Transformation Plan (GTP) for the period 2010/11-2014/15. At the same time a Climate Resilient Green Economy Strategy (CRGE) was developed in 2011 and launched at the 17th Conference of the Parties to the United Nations Framework Convention on Climate Change in Durban, in 2011.

Ethiopia explicitly recognizes that environment is a vital and important pillar of sustainable development, and states that *"building a 'Green Economy' and ongoing implementation of environmental laws are among the key strategic directions to be pursued during the plan period" of GTP on* water, forests, climate change, and

biodiversity conservation for sustainable use (FDRE, CRGE, 2011). In addition, Ethiopia has made important decisions and taken various measures to minimize the effects of climate change. It is party to both the UNFCCC (ratified in 1994) and the Kyoto Protocol (ratified in 2005).

The Environmental Protection Authority (EPA) and the National Meteorological Agency (NMA) have been designated as DNA and Focal Points, respectively. The Green Economy (mitigation) Strategy has been completed for seven sectors that offer the highest greenhouse gas abatement potential: Power Supply; Buildings and Green Cities; Forestry (REDD+); Agricultural/Soil-based Emissions; Livestock; Transport; and Industry. The Implementation of the CRGE strategy requires investment of $150 billion up to 2030(FDRE, CRGE, 2011). The CRGE strategy focuses on four pillars that will support Ethiopia's developing green economy:

1. Adoption of agricultural and land use efficiency measures 2. Increased GHG sequestration in forestry, i.e., protecting and re-establishing forests for their economic and ecosystem services including carbon stocks 3. Deployment of renewable and clean power generation 4. Use of appropriate advanced technologies in industry, transport, and buildings. However, the CRGE, as Ethiopia green economy strategy has been focused on the mitigation[1] which necessitates global analysis and global collective action to climate change. The attractiveness of developing a green economy plans lies in the substantial contributions it can make to economic advancement by offering a new organizing principles by laying the foundation of new and sustainable models of development and by mobilizing international capital to fund the necessary investments and projects in which Ethiopia's ambition to reach middle income status before 2025(FDRE, CRGE, 2011).

Consequently, adaptation[2] (climate resilience) which local community and eco system (avoiding further degradation, restoring service that has disappeared) based of indigenous local knowledge got less emphasis where local funds required for implementing.

9.6.1. The Impacts of Climate Change in Ethiopia

Climate change is already taking place now, thus past and present changes help to indicate possible future changes. It is widely noted that climate change presents a new type of challenge for development. Climate change will have far-reaching consequences for agriculture that will disproportionately affect the poor. Greater risks of crop failures and livestock deaths are already imposing economic losses and undermining food security and they are likely to get far more severe as global warming continues. Particularly, those who cannot meet their food requirements through market access (Lobell, *et al*., 2008). It is also recognized that poor populations are more vulnerable and have less adaptive capacity to confront such changes. Countries with a lack of resources, poor infrastructure, and unstable institutions have little capacity to adapt and are highly vulnerable (UNFCCC, 2007). These factors are intrinsically linked with those promoting sustainable development that aims to improve living conditions and access to resources.

Moreover, climate change will have wide-ranging effects on the environment, and on socio-economic and related sectors, including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Changes in rainfall pattern are likely to lead to severe water shortages and/or flooding. Melting of glaciers can cause flooding and soil erosion. Rising temperatures will cause shifts in crop growing seasons that affects food security and changes in the distribution of disease vectors putting more people at risk from diseases such as malaria and dengue fever (UNFCCC, 2007). In addition, over the last decades, mean annual temperature has been increasing by 0.37° C every decade between 1951-2006(Yohannes Abera, 2009) in Ethiopia. Therefore, adaptation measures are needed urgently to reduce the adverse impacts of climate change, facilitated by concerned international action and country development planning and strategies. It is imperative to identify and institutionalize mechanisms that enable the most vulnerable to cope with climate change impacts. This requires collaborative thinking and responses to the issues (FAO, 2008).

9.6.2. Ethiopia's Contribution to Climate Change

The GHG emissions per capita in 1994 totaled to 900 kg Co2 equivalent per capita and year. Compared to other countries, Ethiopia's emissions are very low (e.g. the U.S. emissions amount to 23.7 tones CO2 equivalent per capita and year in 1994). Sector wise, Ethiopia's GHG emissions are dominated by agriculture, which contributes 80% of the total GHG emissions. This reflects the fact that livestock farming goes together with high methane emissions. The dominant position of livestock farming in Ethiopia's economy also influences the relative contribution of GHG to the total emissions. These are dominated by methane emissions, which account for 80% of the warming potential. In addition to agriculture, the energy sector (heating, cooking, and trans-port) contributes to the total GHG emissions with 15%. 95% of the energy consumption is satisfied by bio-mass sources (mainly wood); petroleum and electricity are of minor importance.

[1] Mitigation of climate change is an approach by which countries are committed to reduce the amount of greenhouse gases emitted to the atmosphere through their industries, deforestation and land degradation. Some of the mitigation strategies of climate change include:

[2] Adaptation "adjustment in practice, process, or structure to take in to account changing climate change, to moderate potential damage or to benefit from opportunities associated with climate change.

Ethiopia's GHG emissions are closely linked to basic needs of the population: Food production through livestock farming and heating. Therefore, the future GHG emissions will likely increase with the projected increase in population. (Marius Keller, 2009).

9.7. Water Resources and the Environment

The World Bank's Country Environmental Analysis for Ethiopia concludes that the country's principal environmental challenges involve complex cross-sectoral linkages. Two of the key environment- development linkages identified by that study relate directly to the challenges posed by Ethiopia's hydrology. They are the lack of integrated water resources management and the land degradation–food insecurity–energy access–livelihood nexus. The latter includes unsustainable agricultural land management practices and heavy reliance on biomass energy. The use of biomass spurs deforestation and erosion and contributes to a significant environmental health problem. Both deforestation and degraded soil structure include less infiltration of rainfall, which diminishes groundwater recharge; more runoff, which contributes to erosion and siltation; and reduced water storage capacity in the soil, which makes crops less able to withstand drought (World Bank, 2006). The key vulnerability in adaptation to climate change and environmental degradation impacts on water resources is the prevailing attitude to possible, threats to water shortage (Yohannis Abera,2009).

9.8. International agreements on Environments Management

The past decades have been a significant shift in the debate on climate change and environments. No longer the preserve of scientists and political activists, it has started to occupy the mainstream of everyday discussion. Consequently, the UNFCCC and its Kyoto Protocol as one of the most notable international climate change protocol have set a significant precedent as a means of solving a long-term international environmental problem. Some of the important protocols are briefly discussed below:

The United Nations Framework Convention on Climate Change (UNFCCC) (1994) The UNFCCC was signed by Ethiopia during the 1992 Rio Conference in Brazil and was ratified on 31 May 1994 and The Convention on Biological Diversity (1994) Ethiopia ratified the Convention on 31 May1994 through Proclamation 98/1994 were supported by UNDP for the preparation of the National Adaptation Programme of Action (NAPA), Coping with Drought and Climate Change and Climate Change Enabling Activity and Promoting Autonomous Adaptation at the community level in Ethiopia. UNDP also supported a Dynamic Farmer-Based Approach to the Conservation of African Plant Genetic Resources, Sustainable Development of the protected area in to Farming Systems of Ethiopia (FDRE, EPA, 2012).

The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification which is known as the Desertification Convention – adopted in 1994 where Ethiopia signed in 1994 and ratified in June 1997. Following the ratification the Environmental Protection Authority (EPA) was designated as the Focal Point to Combat Desertification and Mitigate the Effects of Drought (in short, NAP) as well as formed a task force for the formulation of a National Desertification Fund (NDF). The Cartagena Protocol on Bio-safety to the Convention on Biological Diversity- Bio-safety Protocol – adopted in 2000. UNEP provided support for Effective Implementation of National Bio-safety Framework. Ethiopia has now developed a bio-safety law and a number of directives to implement it (FDRE, EPA, 2012). The Stockholm Convention on Persistent Organic Pollutants (known as the Stockholm Convention– adopted in 2001). Despite several international conferences, protocols, agreements and arrangements, in general, biodiversity, desertification, and natural resource degradation, agricultural production, including access to food in many African countries, is projected to become severely compromised by poor environmental management and climate change and variability.

10. Conclusion

Before World War II was considered as "Dark Age" of environment. Even if some researcher identified the awareness of environment was during the Minlik II where shortage fire woods the public officials concerned for the forest management of the country. The environmental concerns were got attention after www II during the 1960's. It is deemed to be the result of misguided and unregulated modification of the Ethiopian environment, in particular the vegetation, soils and natural ecological processes, increased human and animal population which has led to their fast depletion and serious environmental degradation. Their exploitation has been and still is beyond their "self-replicating capacity".

Consequently, during the emperor period, for example In 1965 three forest laws namely, State Forest Proclamation No. 225, to conserve, protect, develop and utilize forests under State ownership, Private Forest Conservation Proclamation No 226 where forests, not owned by the State, as "Private forest" and Protective Forest Proclamation No. 227 considering the Deeping environmental degradation. The main rationale behind the legislation was the conservation of the soil, water, control of floods, desertification, preservation of fertility and beauty of the country included any land, regardless of ownership. But environmental concerns in Ethiopia during the past regime was not directly emphasis was on economic growth and the potential immediate exploitability of the country's natural resources as a means of supporting rapid and increased economic growth.

The past regime was highly supported and misguided by the expatriate experts without considering the local context. As a result of mismanagement of resource, land and property right cases and proclamations and laws and policy forests are being destroyed at an alarming rate.

In addition, the absence of land use planning has become the root cause of conflict between government and peasants especially during the imperial and Derge regime and even in some places currently also are challenging the environment. Absence of popular participation in resource management has resulted in the rejection of government policies formulated and implemented from the centre, policies such as collectivization, villagization, and resettlement, campaigns for reforestation and soil conservation, and prohibition of tree cutting. The frequent reallocations of land by peasant associations all over Ethiopia during the past regime created a strong feeling of tenure insecurity among land users.

As a result the Derge conservation policy was emphasis on the construction of bunds and terraces, which were believed to be effective measures against soil erosion, was failed. Moreover, Efforts at expanding the infrastructural and industrial base of the country have had negative consequences on the environment. The expansion of irrigation schemes has led to the spread of vector-borne diseases and the displacement of small fanning and pastoralist communities. Unlike the resources in domesticated plants, the genetic resource of their wild relatives comprising genetic resources of medicinal plants, forest resources, microbial resources, naturally occurring plants and also wild animals have not been given sufficient attention and as a result there is continuous loss of biodiversity.

But, after Kyoto protocol, Ethiopia explicitly recognizes that environment is a vital and important pillar of sustainable development and incorporates in the development planning like the CRGE and to reduce the effects of climate change *on* water, forests, climate change, and biodiversity conservation for sustainable use. In the economic appraisal of development projects, the costs of environmental and natural resource benefits forgone as a result of the projects' activities are started to included in the calculations through environment policy and environmental impact assessment of for development projects.

In general currently the Ethiopian governments has been started to sign and enacted policy, laws and establish institution to the managements of environments, and prepared CRGE documents which emphasis on mitigation than adaptation. However, the concern of environmental management is global and unanimous agreement among developed and developing countries.

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