

# FORUM FOR SOCIAL STUDIES

## CIVIL SOCIETY AND ENVIRONMENTAL POLICY DIALOGUE



*CONSULTATION PAPERS ON ENVIRONMENT No. 4*

## **Economic Development and its Environmental Impact**

Edited by  
Gedion Asfaw

**Addis Ababa  
August 2003**

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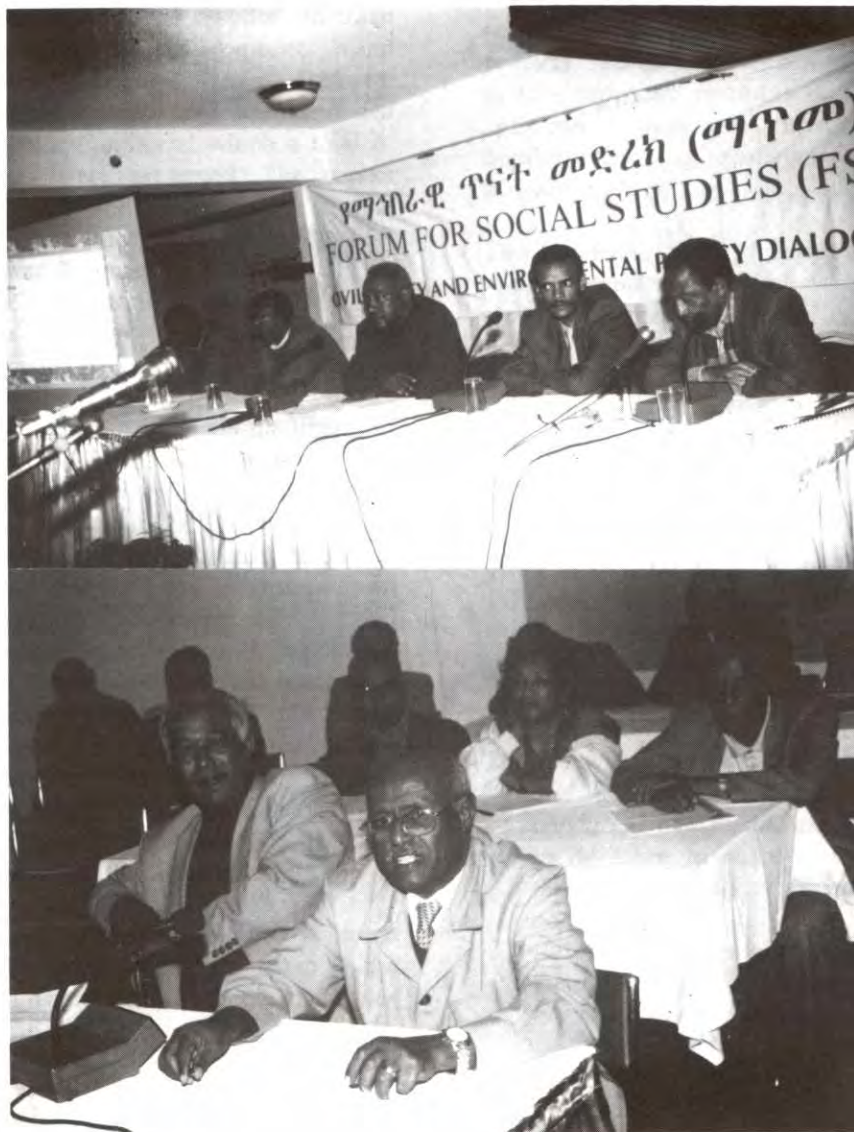
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## Contents

<b>1. Introduction</b> <b>Economic Development and its Environmental Impact.....</b> 1 <i>Gedion Asfaw</i>
<b>2. Summary of Presentation and Discussions.....</b> 3
<b>3. Forest and Wildlife Conservation in Ethiopia:</b> <b>factors behind the failure.....</b> 8 <i>Kinfe Abebe</i>
<b>4. Overview of Environmental Assessment (EA) in Ethiopia.....</b> 24 <i>Solomon Kebede</i>
<b>5. Urban Environmental Degradation.....</b> 34 <i>Ammanuel Malifu</i>





CIVIL SOCIETY AND ENVIRONMENTAL  
POLICY DIALOGUE

*Fourth Forum, August 1, 2003,  
Semien Hotel*

**Introduction  
Economic Development and its  
Environmental Impact**

*Gedion Asfaw, Editor, and Programme  
Coordinator*

On behalf of the FSS I once again welcome you to the fourth Civil Society and Environmental Policy Dialogue.

This is the fourth Forum, which will address issues related to environmental impact of economic development.

The last three meetings dwelled on three themes covering *Environment, and Environment Change in Ethiopia, Environment, Poverty and Gender, and Environmental Conflict* at which a total of nine papers were presented. The papers presented and the proceedings of the discussions are now published in the FSS Consultation Papers No. 1, 2 and 3. We hope these consultation papers will be useful references and the ideas discussed will inform decision makers.

In today's forum I have taken the liberty of quoting verbatim what I submitted to the *conference on breaking the cycle of famine* organized by NGOs in the first week of July 2003. I do this for two reasons: first, since our discussion today focuses on deforestation, development and environmental impact the recommendations I made at the above mentioned conference are also relevant and valid for this forum, second I would like to present my submission to this audience for its consideration and further enrichment which may take these recommendations one step closer to practical implementation.

I have also attempted to include some additional remarks to align the recommendations with the theme and topics of the fourth forum.

The following excerpts are taken from my paper entitled "Natural Resources Management and Drought Related Famine Prevention" with modifications to suit our discussions of today.

*"Through the last decades we have done a lot of talking with very little action. We have said what needs to be said in terms of identifying our problems and prescribing solutions. But we have failed in implementing them.*

*It is about time that we start to talk about **environmental rehabilitation Marshal plan**, not global environmentalists are currently discussing about a global environmental Marshal plan but the severity and extent of environmental degradation in Ethiopia calls for such a plan.*

*The proposed Plan focuses **first**, on the rehabilitation of disfunctioning development projects, **second** mobilization of Ethiopians to take practical measures in forestry and soil conservation and **third** accelerated implementation of strategies, which are already in place.*

*The following are prescriptive type of recommendations and follow up actions, typical of urgent, short and medium term actions. However all of the proposed actions need to be discussed with the rural communities and must have the agreement and collaboration of these communities.*

**Rehabilitation of disfunctioning projects**

- 1. A joint federal and regional task force should be established with a mandate and responsibility to rehabilitate and make productive all of the disfunctioning irrigation projects in the country.*
- 2. A rapid assessment of previous state and cooperative farms should be conducted and immediate action needs to be taken to make them productive through mostly private sector participation.*
- 3. Rural development projects such as Tana Beles project, former settlement projects and other abandoned and semi-*



*finished projects must be rehabilitated urgently and put to use.*

*In order for the above to materialize:*

- *Priority should be given to the rehabilitation of the country's environment and all other ramifications which hinder the rehabilitation effort should be rendered secondary.*
- *Conducive and attractive terms should be offered to the private sector. (For instance 5-10 years grace period, payment for farm infrastructure spread over 15-25 years.)*
- *Environmental guidelines must be issued for all actors involved in the rehabilitation and development of large-scale farms and the government should ensure compliance.*

**Note** to the FSS fourth Forum: rehabilitation of disfunctioning projects such as Tana Beles, irrigation and other projects contribute substantially to efficient and effective land use thus minimizing land resources degradation and enhancing better environmental management.

### ***Social Mobilization***

1. *All Schools, higher learning institutions, and military establishments in the country should join a mandatory national environmental rehabilitation service and embark on afforestation and soil conservation activities within 10 to 15 kms radius from the center of their location.*
2. *Religious institutions should use their influence on all of their constituents to join in environment rehabilitation campaign, especially to undertake rehabilitation works near and around their worship places.*
3. *NGOs and government should provide support in the establishment and rehabilitation of nurseries, provision of tools and technical advise.*

4. *Regional governments need to put in place a mechanism by which degraded lands are made available free of charge and free of bureaucratic hurdles to private firms and individuals for forest development and recreational areas*

*For the whole initiative to work the suggested initiative should be planned, developed, and implemented at the Woreda level.*

### ***Implementation of existing strategies***

1. *The Federal government needs to put a mechanism in place to ensure the implementation of the **Ethiopian Forestry Action Plan** and the **Conservation Strategy of Ethiopia**, which have also been formulated and adopted in all the regions. Substantial resources should be allocated both from government and donors for the implementation of the strategies and in particular for soil conservation and afforestation projects.*
2. *All of the regional states should establish annual targets for achieving a regional forest cover in a given period of time and allocate resources for attaining the target. (for instance a target to have 25% of the area of a given region with forest in the coming 10 to 15 years).*
3. *A moratorium on permit to any kind of investment within the remaining high forest should be imposed and strict environment management plan should be enforced on existing investments within the boundaries of high forests”.*

I hope the above thoughts will enrich our discussions and contribute to the rehabilitation of the country's environment. With these brief remarks I welcome you all and wish you a successful deliberations.

Thank you.

\*\*\*\*\*



## Summary of Presentation and Discussions

This is the summary of the papers presented and the proceedings of the discussions held at the fourth forum of the Civil Society and Environmental Policy Dialogue on *Economic Development and Its Environmental Impact*.

Moderator: Ato Astatkie Bayou from the Ministry of Finance and Economic Development (MoFED).

### Presenters:

Ato Anteneh Shimelis, Research Officer from Ethiopian Wildlife and Natural History Society (in lieu of Ato Kinfu Abebe) on *Deforestation, Habitat Change and National Parks*.

Ato Solomon Kebede from Environmental Protection Authority on *Investment and Infrastructure Development and Impacts on Environment*

Ato Amanuel Malifu from Environmental Protection Authority on *Urban Environmental Deterioration*

Rapporteur: Ato Girma Feyissa

## General Comments, questions and Discussions

### *Opening the Floor for Discussion*

The moderator Ato Astatkie Bayou summarized the essence of the opening remark and the topics presented noting that the issues were very critical and essentials calling for candid discussions and appropriate timely actions. He opened the discussions by inviting Dr. Sime to take the floor.

### First Comment

Dr. Sime jovially expressed his indebtedness for being offered the first chance to start 'the ball to roll' as a senior citizen, a positive Ethiopian trait of respecting the elderly that

should be kept alive he remarked. DR. Sime commented that he has oftentimes heard at various venues that the lack of awareness on the part of the farmer or the poor peasants living off these resources is mentioned as the major contributing factor. He, however, feels uncomfortable with this rationale as a formidable problem. He has been to places where deforestation or soil degradation has taken place and talked to the farmers there. They tell him that they are aware of the consequences of deforestation or degradation. They have no choice. He questions the justification given as lack of awareness on the part of the poor peasantry. Perhaps lack of alternatives could be one attributing factor.

### Second Comment

The second comment came from Ato Yohannes Habtu. After congratulating every presenter, he pointed out that there were too many data provided that he found it a bit difficult to tie knots. He observed that Dr. Sime's contention was not adequately treated and that there was one major issue missing in the presentation dealing with wildlife that is the question of policy with respect to wild life conservation in captivity. Is this practice legal?

There are no legal instruments that delineate grazing ground and enclaves for wildlife.

The other point raised by Ato Yohannes was the issue of limiting environmental interventions to governmental institutions. The problem is dynamic and cuts across all the strata of society, political leaders, community leaders, and the rural people at the grass roots level. The way he looks at it, the government is resigned and lets environmental degradation take its own course due to many reasons. There is also one notion that keeps coming oftentimes that the poor cannot afford to conserve. This is also, unfortunately, the perception of donors. This could be contested.

### Question and Comment.

The last presenter pointed out that the rural-urban migration is scaling up the urban



degradation. If this so, it means that this type of migration is not acceptable. Many economists, however, argue that the rural-urban migration is an impetus for economic growth. How do these two diametrically opposing views reconcile?

He personally thinks that at present the urban population is in the range of 10 to 15 percent. There seems to be little or no cause for worry at least for the next 20 years.

### **Comment**

Ato Feleke Tadele after thanking all the three presenters raised the following three questions to all the presenters. The first point he raised dealt with park management. He said that what really lacks is community participation and adequate information. The presenter has made some effort to enlighten us on the issue but from my experience I know that NGOs had set good examples at Chilimo in Bonga zone by taking the initiatives to encourage the community feel the sense of ownership and communally manage the park.

The second point is the issue of urban pollution caused by the consumption of kerosene as a source of energy. The ill practice of throwing plastic bags after use is a critical problem that is increasingly polluting our urban areas. Some kind of recycling mechanisms have to be urged. The third issue raised was pertaining to the subject of Environmental Impact Assessment. The commentator feels disappointed with the level of awareness about its very existence. A lot of work has to be carried out to popularize it and all concerned parties should strictly adhere to the rules and regulations provided with respect to environment impact assessment before any project is approved and implemented.

### **Reactions**

The first presenter reacted to Dr. Sime's disagreement on attributing lack of awareness to the folly committed to cut down trees and degrade the environment. He never said that there is lack of awareness.

What he was trying to float was the lack of active citizenry. He does not believe that everybody is fully aware of the consequences of deforestation and degradation. This forum would not have been necessary if that was the case. One has to agree on the definition of awareness.

As far as the rural/urban migration is concerned, there are some who say that it increases pollution and others who argue that it brings modernization. In the case of Ethiopia, he has not seen any rural/urban migration bring modernization. All he sees is the swelling up of 'the jobless army'.

As for the type of energy source used in Ethiopia is concerned, it is probably the only country in Africa where over 90% of the rural people use cow dung, fuel wood, charcoal and traditional sources for generating energy even by African standards.

Even in the towns and urban centers, the energy used is among the lowest in Africa. The type of energy used is the most polluting and one cannot foresee for how long it can continue like this.

### **Response by the second panelist**

The issue raised by Dr. Sime on awareness seems to be a paradox. However, when we closely examine the impacts of deforestation as well as degradation, there seems to be no mistake. The impact hits hard especially when it becomes a question of livelihood. Investors for instance, deploy labor and money for development. Everybody is aware of the impacts on the environment but it is a question of survival. When there is a new developer there is going to be losing in grazing land, in land best suited for agriculture. There would be eviction and displacements of settlers.

On the other hand, we have to go extra miles to attract investors by creating conducive situations. However, investment that jeopardizes the natural environment of the country should be avoided as far as possible.

This entails scrutinizing the merits and demerits to be expected from various types



of investment undertakings and the ensuing impact on the environment. However, not many investors seem to abide by the law and care about the impacts of their projects on the environment. In a country like Ethiopia where the natural resources are already depleted, any policy that does not take care of these problems stands little or no chance of success. The country has a very difficult problem in attracting foreign investors. On the other hand the investors have no the obligation to safeguard the environment. We are in this dilemma. Sustainable economic development needs to put impact assessment as part of the whole planning process. This needs a great deal of aggressive publicity work.

In the United States, the public reaction to industrialization and the adverse impact it entails on the environment forced the government to enact the 1970 National Environment Protection Law. This was a pioneer for the rest of the world albeit its recent advent to this country. There is a wrong notion that impact assessment prerequisite hinders development. There are costs and benefits of every development undertaking. One has to assess and weigh between the social, economic and environmental costs and the sustainable development benefits that such undertakings yield.

### **Response by the third panelist**

The issue of lack of awareness, according to this panelist who is a conservation biologist by profession, is very pertinent and rightly addressed by the first presenter. He encounters this formidable problem during fieldwork. The issue of lack of awareness may not be equally applicable for everything. However, as far as the problem of conservation is concerned the statement holds true. Practical examples demonstrate that by creating awareness among the grassroots level of the community it can amply be proven that the community benefits from conservation more than exploiting the natural resources. The Kero system in Menz community development scheme is a case in point.

The practice of killing wild animals like the fox for example, is simply a manifestation of lack of awareness. People think that if the government is fond of wild animals like the wolf or the fox, it can take them anywhere it likes.

A wildlife conservation project started and crowned with success in preserving the species. There are people who believe that using river water for agriculture would dry up the rivers. In one particular area there were 23 rivers running while there was drought in the same area. That is a clear case of lack of awareness. There is clearly lack of awareness even among the higher echelons of power. As for the question of preserving wildlife by captive breeding, one has to identify those approaching extinction. Captive breeding can be an inevitable option to save species, but is an expensive venture.

Population growth put a tremendous pressure on the environment and the natural resources. Community participation is very essential to maintain and develop the environment.

Government, nongovernmental institutions and the community may have sometimes-conflicting interests. Creating awareness is a crucial matter to pacify conflicts and creating conducive situations for working together for a common goal.

### **More Comments and Remarks**

Ato Gedion asked if one could say with certainty that the government has sidelined environmental protection issues. If that is the case then sustainable development is in jeopardy. The government has to address environmental issues with the purpose of urgency. As defined by Ato Amanuel environment deals with almost everything. It is not something we care about because it is the requirement of donors. The countdown with regards to depletion of the country's forest resources has started long ago and we have now only 0.2% of the undisturbed high forest remaining. This is not the time for talking and complaining about deforestation, or environmental resources depletion. It is to marshal all resources and take action to urgently rehabilitate our forest and soil resources.



## **Dr. Zemedu**

The case of squatters or illegal settlers in the national parks should raise the logical question why?. The lack of alternatives forces people to emigrate from their natural habitat to survive even across borders. If we put ourselves in their positions, what would we have done? The parks have to be protected. The government should also arrange for alternatives for the settlers. Perhaps this issue could be incorporated within the Marshal Plan proposed by Ato Gedion. Talking oftentimes about the next generation is idle talk until the elite deeply knows the causes of migration into the wildlife reserved areas. "I have no definite answer for them at hand but I feel that the issue being raised at every national and international forum deserves due study.

### **Comment**

One of the participants who did not mention his name revisited the issue raised earlier on about the impacts of rural/urban migration and environmental degradation as mutually exclusive while the history of economic development is also the history of environmental degradation as gathered from the history of the developed nations of the world.

The second point of disagreement with the statement of the presenter that urbanization does not contribute to economic development of better quality of life. Recent researches made by the Economists Association reveal that the per capita income of a wage earner is seven to eight times greater than that of the peasant farmer. The urban dweller has better access to education, clean water, sanitation and medical services. That does not mean that there are no destitutes in urban areas. However, there are too many people in the rural areas (85%) beyond the carrying capacity of the rural resources. That is why so much depletion and deterioration takes place. Life in the rural areas is threatened in present day Ethiopia.

The other point raised pertains to the fire-extinguishing type of development

approach. For example if there is a significant unemployment problem and if an investor applies to carry out an undertaking that absorbs the unemployed risking the environment, what will be the choice to make? Strategic developmental planning is essential.

### **Comment**

Ato Gideon's proposal for a kind of a Marshal plan is welcome. The problem is political issues compete for expediency instead of concerted effort to bring about socio-economic development in the country.

### **Concluding Remark**

The moderator made a few remarks on the overall interesting discussions made this evening. In particular, he raised the issue of crisis management in passing and said that environment friendly projects can also be sources of employment.

### **Closing Remark**

Ato Gedion thanked all present for their interesting discussions and lively interventions by participants. In passing, he reacted to Dr. Zemedu's observation and said that it is the human being that is the goal of all development endeavors. Whenever there is a dilemma between development and environment protection environment impact assessment needs to be conducted and when peoples livelihood is at stake, people should be given priority and alternative options should be put in place where compromise can work. It is not only a question of technological advancement or finding better alternatives it also requires political commitment on the part of those in power towards sustainable development. We have now almost reached a point of no return as far as the high forests are concerned. Deforestation is estimated to take place at the rate of 200 thousand hectares per year and from the remaining 0.2% of undisturbed high forest this does not give us a leeway to contemplate any more countdown opportunity. That is why I proposed an immediate and drastic action

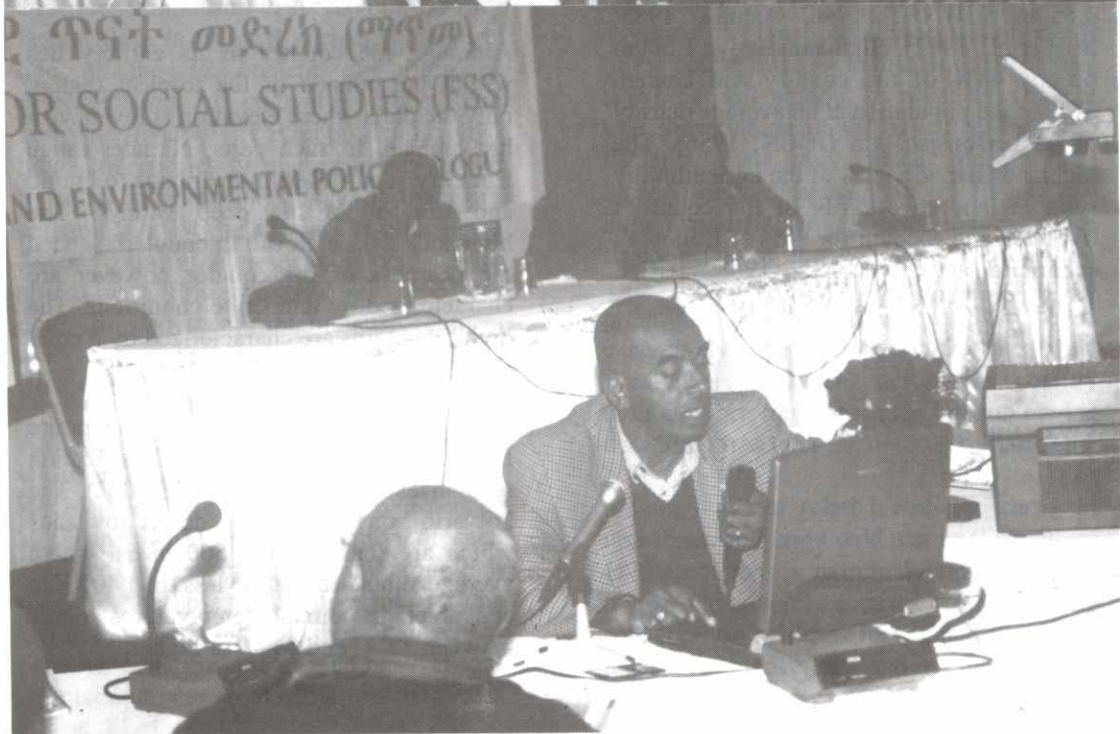
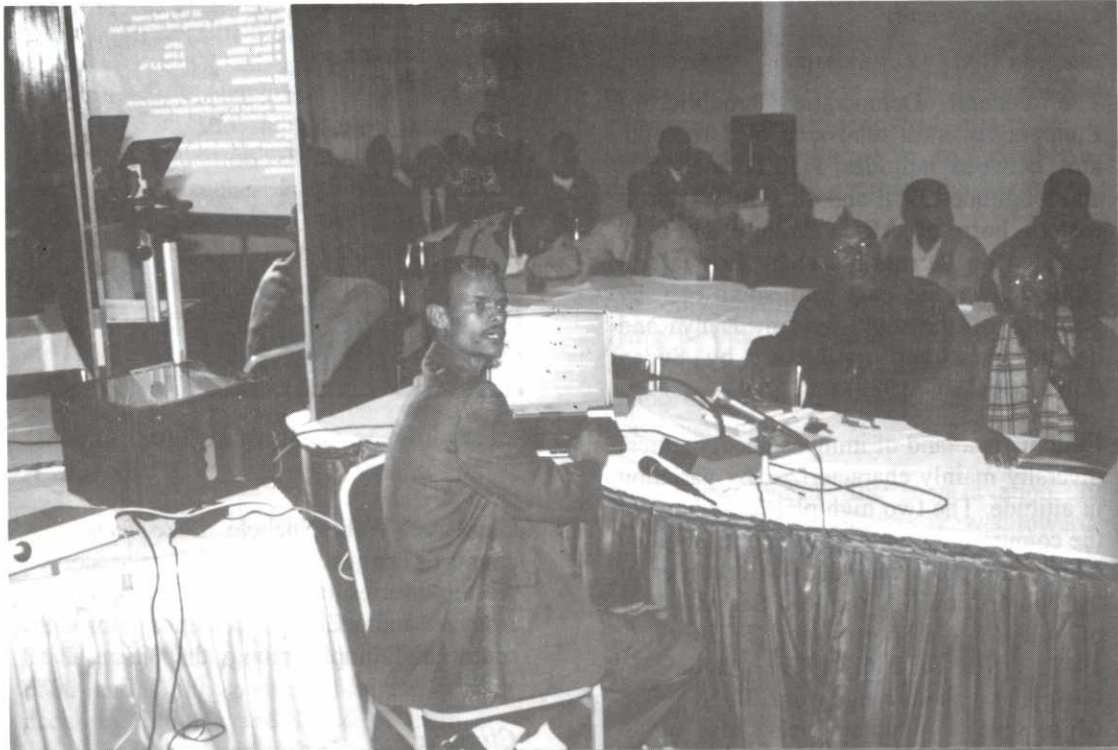


under whatever name, Marshal or Ethiopian Plan or another name one may give it.

A moratorium must be declared immediately to stop any investment within the high forest areas. Regions may be competing to attract investors sometimes at the expense of the country's crucial

resources. It is always a question of compromise. Investment can take place without risking the environment. He once again thanked the audience for the concern shown and closed the session by inviting all present to a modest reception.

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## Forest and Wildlife Conservation in Ethiopia: factors behind the failure

*Kinfe Abebe, Executive Director, Ethiopian Wildlife & Natural History Society*

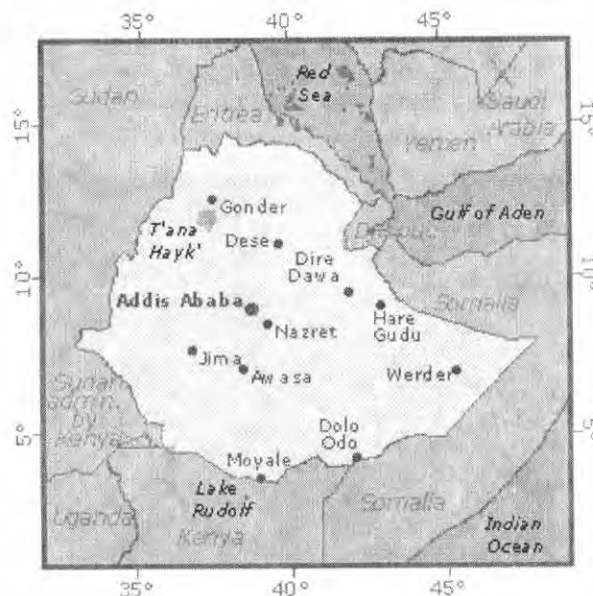
### 1. Introduction

#### *Country geography*

The Federal Democratic Republic of Ethiopia covers a total area of 1 104 300 km<sup>2</sup> between latitudes 3°30'N and 18°N and longitudes 33°E and 48°E in the north-eastern horn of Africa (Figure 1). It is bounded on the north-east by Eritrea and Djibouti, on the east and south-east by Somalia, on the south-west by Kenya and on the west and north-west by Sudan (UNEP-WCMC, 1989).

Ethiopia is a land of immense geographical diversity mainly characterized by variation in altitude. The two high plateau regions of the country are separated by the Rift Valley which runs from the south-west corner of the country towards the Red Sea and Gulf of Aden in the north-west (Friis *et al.*, 1982; UNEP-WCMC, 1989). Altitude in the lowland plains range from 200 to 500m, while several mountain peaks rise up to 4,550m (EWNHS 1996, Ashine, 1983; Friis *et al.*, 1982). Highlands above 1,500m occupy 44% of the country and contain 88% of the population at an average density of 45 persons/sq. km (IUCN, 1986). The highlands include 90% of the agriculturally suitable land, two-thirds of the country's livestock and account for 90% of Ethiopia's economic activity (FAO, 1988; IUCN, 1986; UNEP-WCMC, 1989).

Figure 1 The boundary map of Ethiopia with the country's major cities



Omo, and Wabe Shebele. Lake Tana, the country's largest lake, lies in the north-west. A series of lakes, including Lakes Abaya and Ziway, extends through southern Ethiopia along the Great Rift Valley.

#### *Climate*

Although the country in its entirety lies within the bounds of the tropical region, only the parts where elevation is low have a hot climate. In such parts, climates range from dry semi-desert in the plains to humid and tropical in the deep valleys. The highlands whose elevation counterbalanced the nearness of the equator however are characterized by temperate conditions. The high mountains are characterized by a cold, alpine climate.

Based on altitude and temperature Ethiopia's climatic classification recognizes five zones (EWNHS 2002). The hot arid zone covers the desert lowlands which are found below 500 m asl where average annual rainfall is less than 400 mm and average annual temperatures range between 28° C and 34° C or higher.



The warm to hot semi-arid zone is the climate of the hot lowlands with an altitudinal range of 500-1500 m asl. Average annual rainfall in this zone is generally around 600 but can be as high as 1600 mm in the wet western lowlands of Gambella. Average annual temperatures are between 20<sup>o</sup> C and 28<sup>o</sup> C. The warm to cool semi-humid zone covers the temperate highlands that fall in the altitudinal range 1500-2500 m asl. Average annual temperatures in such areas are between 16<sup>o</sup> C and 20<sup>o</sup> C and rainfall per annum is generally around 1200 mm and in the southwest it reaches 2400mm. The cold moist temperate zone covers the Afro alpine areas on the highest plateaus of the country falling within the altitudinal range of 3200-3500 m asl. Average temperatures is below 10<sup>o</sup> C and average annual rainfall is generally below 800 mm.

#### ***Diversity and uniqueness of biological resources***

As a result of its location and high physiographic diversity, which in turn affects the climate and soil, Ethiopia is endowed with a very high level of biodiversity. It is estimated that between 6500 and 7000 species of higher plants occur in Ethiopia and 15 % of them are endemic. In addition to its having the fifth largest flora in tropical Africa, Ethiopia is one of the 12 centers of origin or diversification of cultivated crops. The faunastic diversity of Ethiopia is also very high. 260 species of mammals are known to occur in Ethiopia and 22 of them are endemic. Out of the 816 bird species listed for the country 16 are endemic and 13 are shared with Eritrea only. Very little was done to document amphibians, reptiles, fish, and invertebrates of the country (EWNHS 1996).

Although Ethiopia is one of the countries with very high biodiversity across the globe it probably is also one of the few corners of the planet where the devastation of such resources is very critical. Many argue that most of the loss of biodiversity in this country is a result of the predicament between ensuring one's own survival and maintaining the ecological balance that

ultimately determines the habitability of the country for humans. But such an argument is acceptable only if all the options of biodiversity preservation either via conventional wisdom or scientific enlightenment are exhausted and Ethiopian's are faced with a calamity in the proportion of the biblical flood under which time and reason don't matter any more. For citizens of this country biodiversity conservation is not a recreational leisure, as it is wrongly perceived in the affluent west. It is rather a venture of no alternative to achieve a decent way of life even by the hazardous standards of Africa.

Successive generations of Ethiopian's have not only mismanaged biodiversity found lying in their backyards, but they are not even able to effectively preserve the tiny bit found in the very few areas designated for conservation.

From the outset the conservation of biodiversity in Ethiopia was skewed towards preserving forests and the large charismatic mammals that are found to a large extent in the arid and semi-arid parts of the country. Those components of life that are primarily associated with wetlands, mountain and arid ecosystems that were considered to be less important for large mammals and the environs of human habitation were left out of the conservation scheme. Because of this, it can be said without so much of a qualm that conservation of biological resources in Ethiopia until very much recently has focused almost exclusively on forests and large mammals and neglected the rest of the components of the country's biodiversity. This might explain why afforestation programs in the country have been excessively preoccupied with expanding eucalyptus plantations across the country without worrying very much beyond having a standing tree over the deforested bare land.

Although issues related with the status of non-forest and large wild mammal resources of the country is extremely important this review paper solely focuses on the existing conservation schemes that aimed to protect just part of biodiversity and not the whole.

## 2. Background

### Ethiopia's Forest and wildlife resources

Ethiopia's biogeographic affinities are predominantly Afrotropical in the center with Afroalpine elements where altitude is quite high, Somali-Masai in the south and east and in the Rift Valley, Sudanian in the west, and Sahel Regional Transition Zone in the far north (Stuart and Adams, 1990; EWNHS 1996 & 2002).

Von Breitenbach (1963) classifies the land area of Ethiopia into the broad climax vegetation types of mountain steppes, mountain savannas, mountain woodlands, highland forests, lowland woodlands, lowland savannas and lowland steppes. He further describes more than 50 different plant communities, especially from the botanical point of view (Figure 2).

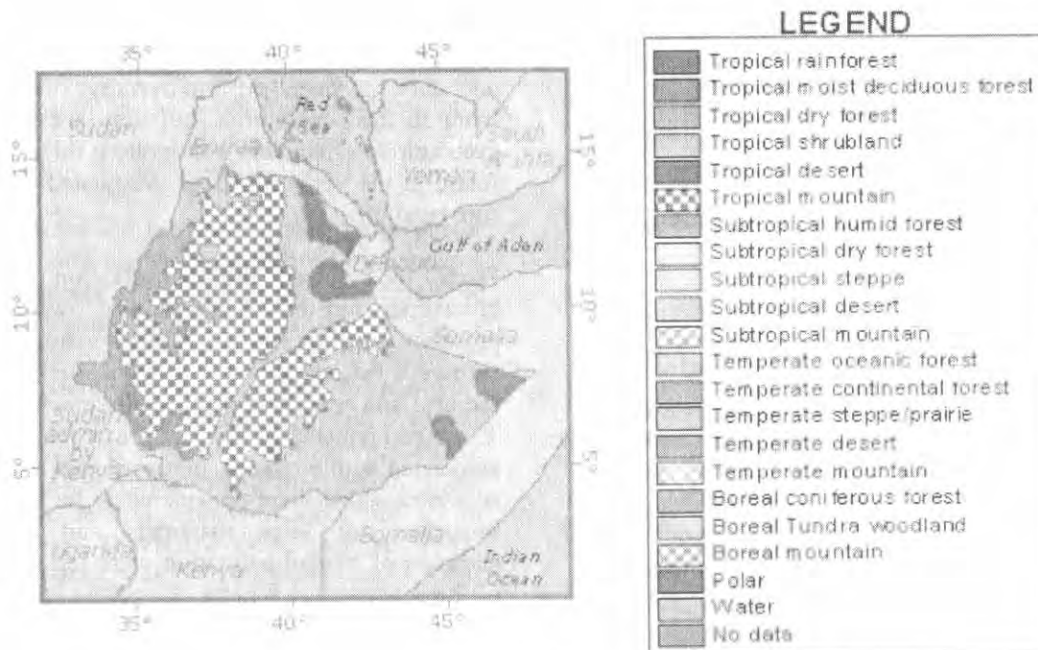


Figure 2 The vegetation map of Ethiopia



### 3. Discussion

#### *Conservation initiatives in Ethiopia*

Emperor Zere Yakob who was king between 1434 and 1468 implemented the earliest recorded conservation initiative in Ethiopia. It was said the loss of tree cover over the hills surrounding Addis Ababa had concerned this exceptionally visionary king prompting him to initiate his afforestation program that created the Menagesha-Suba montane forest that the latest inheritors proud to call a park.

Following Zere Yakob's footsteps, successive imperial and people's governments have initiated policies; passed legislations; designed programmes and built institutions albeit with little impact.

#### *Policy and legislation*

Along with the molding of modern Ethiopia, it was Menelik II who had proclaimed the first legislation to conserve Wildlife in Ethiopia (Hillman, 1993).

Emperor Haileilassie's *Gazzetta Eritrea* (No. 4) of 16 March 1959 was also one of the earliest pieces of legislation and it was meant for the creation of protected areas in Ethiopia. By virtue of this legislation, three absolute reserves were created in Eritrea. Other early laws allowing for the creation of national parks are the Awash National Park Order No. 54 of 1969 and the Simen National Park Order No. 59 of 1969. The Wildlife Conservation Regulations (No. 416) of 19 January 1972 were issued by the Minister of Agriculture pursuant to the authority vested in him by Article 4 of Game Proclamation No. 61 of 1944 and Article 10 of the Wildlife Conservation Order No. 65 of 1970. These regulations constitute the main body of rules on wildlife management and conservation, and make provision for the creation of national parks, game (wildlife) reserves, sanctuaries and controlled hunting areas. The Forest and Wildlife Conservation Proclamation No. 192 of 5 September 1980 allows for the demarcation, registration and administration

of state forests, national parks, wildlife reserves, sanctuaries and areas for afforestation, controlled hunting and scenic attraction. It also makes provision for the establishment of protective forests and Kebele forests. This proclamation repeals State Forest Proclamation No. 225 of 1965, Protective Forests Proclamation No. 227 of 1965, Game Proclamation No. 61 of 1944, and Wildlife Conservation Order No. 65 of 1970, amongst others. It does, however, keep in force the Wildlife Conservation Regulations of 1972 and the Wildlife Conservation (amendments) Regulations No. 445 of 1974. The Proclamation establishes the administrative authority for managing conservation areas and forest reserves and sets out offences and penalties in connection with protected areas. Related forestry legislation still in force includes the Protection of State Forest Regulations No. 344 of 1968, which prohibits certain destructive practices in state and protective forests, and unauthorised grazing. The Exploitation of State Forest Regulations No. 345 of 1968 stipulates that exploitation of state forests are reserved to the authority itself, to villagers and local inhabitants under cutting permits and to concessionaires under sales contracts. The Management of Protective Forests Regulations No. 347 of 1968 states that all utilisation, conservation and afforestation operations in protective forests must be carried out in conformity with an approved management plan. The Penal Code Proclamation of 1957 contains several provisions relating to forest and wildlife conservation including, *inter alia*, penalties for contravening rules or regulations protecting national, historical, archaeological and artistic wealth or natural sites, and unlawful entry into reserved hunting or fishing lands. By virtue of the Nationalization of Rural Lands Proclamation of 1975, all private ownership of forests was abolished.

In support of protected areas legislation are a number of policy statements. In 1975, the government, in its statement of economic policy, stated *inter alia*, that preservation of wildlife would be actively followed by the state (Moore, 1982). The Wildlife



Management Policy emphasizes the government's commitment to the conservation, wise development and utilization of wildlife within the framework of land use planning, economic and social development. Interests of wildlife in national parks are considered to be of paramount importance (Hillman, 1986b). The Ten-year National Programme for the Conservation and Management of Forests, Wildlife, Soils and Water (NP), prepared in 1986, sets out, *inter alia* that forest policies, laws and regulations were to be improved (FAO, 1988). Since 1988, there is no coherent national policy covering forestry, soil, water, wood-based energy, wildlife conservation and development (FAO, 1988). To this end, Ethiopia, with the assistance of IUCN, initiated a national conservation strategy (NCS) development programme, which in 1990 entered the policy formation phase. Although the policy on forests is included in the National Conservation Strategy (NCS) experience with and means for management are limited. Most of all the current constitution of Ethiopia makes clear that a healthy environment is a rightful provision of the citizenry and lists a number of broad strategies for its fulfillment.

### ***Institutional development***

Forestry and wildlife development in the Ethiopia began with the creation of the Department of Forestry, Game and Fishery within the Ministry of Agriculture in 1945 (Kidane, pers. comm., 1991). In 1964, this Department was dissolved and the Wildlife Conservation Department created (Ashine, n.d.; WCO, 1985). At the same time, a Wildlife Conservation Board was established which advised the Minister on general policy matters concerned with conservation and national parks (Blower, 1971). By virtue of Wildlife Conservation Order No. 65 of 1970, the Wildlife Conservation Organization (WCO) was created with the responsibility of creating and managing wildlife reserves (Ashine, n.d.). Order No. 74 of 1971 created the State Forest Development Agency (SFDA, later SFoDA) which had responsibility for managing the forest resource. In 1980, the

State Forest Development Agency and the Wildlife Conservation Organization were amalgamated to form the Forest and Wildlife Conservation and Development Authority (FaWCDA) by virtue of Proclamation No. 192 of 5 September 1980 (Kidane, pers. comm., 1991). In December 1984, FaWCDA was dissolved and forestry and wildlife were incorporated within the Natural Resources Conservation and Development Main Department (NRCDMD), in the Ministry of Agriculture, and later the Ministry of Agriculture and the Environment (Kidane, pers. comm., 1991). The NRCDMD had overall responsibility for issuing and implementing directives concerning conservation, and for demarcating and managing state forests and conservation areas (FAO, 1988). The NRCDMD operated with a central organization and thirty regional offices. As of 1988, staff strength of NRCDMD was about 8,000 employees, including 1,000 in professional or technical categories (FAO, 1988). The annual budget allocation for the period 1985-1987 was Birr 311.3 million, comprising Birr 148.8 million as GOE allocation and Birr 162.5 million as foreign assistance (FAO, 1988).

Falling under the NRCDMD was the Ethiopian Wildlife Conservation Organization (EWCO), which was directly responsible for the establishment, administration and management of national parks, sanctuaries, wildlife reserves and controlled hunting areas (WWF, 1988). As of 1991, the EWCO had a total of 306 staff members (Hillman, pers. comm., 1991). All national parks had a warden in charge and a support staff of wildlife guards and administrative personnel (Ashine, n.d.). The State Forest Conservation and Development Department (SFCDD), also under the NRCDMD was comprised, *inter alia* of the National Forest Priority Areas Coordination Division (NFPA-CD) and the Forest Demarcation, Inventory and Management Plan Division (FDIMDP). At a regional level, the Ministry of Agriculture and the Environment oversaw the Natural Resources Conservation and Development Team (NRCDD-T) which, in collaboration with FDIMDP, NFPA-CD and other divisions, established, managed and



developed national forest priority areas (Kidane, pers. comm., 1991). As of 1991, there were 1,239 staff managing 58 national forest priority areas (Kidane, pers. comm., 1991). Peasant associations (PAs) (Kebeles) were created in 1975 to implement the program of land distribution and to provide an organizational structure in rural areas. PAs were also charged with the responsibility of using and preserving natural resources, especially soil, water and forests in their areas of jurisdiction. On average, each Peasant Association covered an area of 800ha with about 200 peasant families (FAO, 1988). As of 1984, PAs numbered 19,867 with 5,539,000 families as members. The PAs were organized in a hierarchy to allow for decision making at the Woreda, Awraja, regional and national levels (FAO, 1988). Urban dwellers associations (Kebeles) were required, *inter alia* to develop, protect and maintain forests within their areas of jurisdiction. These associations were answerable to the municipal or urban authority, which fell under the jurisdiction of the Ministry of Urban Development. Within this ministry, there was also an Urban Dwellers Association Department which was responsible for assisting the Kebeles (IUCN, 1986).

There are a number of national and international non-governmental organisations involved in the conservation, management and development of protected areas. IUCN and WWF have been involved in conservation efforts and projects in support of the country's national parks on an intermittent basis since 1966 (IUCN, 1986). The focus of WWF and IUCN activities has been primarily on Bale Mountains and Simen national parks (IUCN, 1986). With support from UNEP World Conservation International (WCI) and the New York Zoological Society (NYZS), a comprehensive management plan for Bale Mountains National Park was prepared, which has been fully endorsed by EWCO (Hillman, 1986a; WWF, 1988). The World Heritage Committee (Unesco) has provided logistical support to the Simen World Heritage site in terms of vehicles and support for the preparation of a management plan (WCO, 1985; IUCN, 1986). In 1986, a

three week research expedition into the Harena Forest area of Bale Mountains National Park was conducted by the EWCO, the Natural History Museum and National Herbarium of the University of Addis Ababa, Liverpool Museum and Manchester University. The overall objective of the expedition was to provide ecological information for the future conservation and management of this moist tropical forest area (EWCO, 1986; Hillman, 1986a). This expedition was supported by WCI/NYZS and the Royal Society (Hillman, pers. comm., 1991). The Ethiopian Valleys Development Studies Authority, with the assistance of several bilateral and multilateral agencies, was preparing plans for integrated river basin development, including forestry, wildlife and natural resources conservation and recreation (FAO, 1988). A number of Ethio-German Forest Rehabilitation projects took place between 1974 and 1988 involving forest demarcation and advisory services to SFCDD (FAO, 1988). The Norwegian SSE Programme, with the University of Oslo Biology Department conducted a five-year wildlife management study in Borena Region, southern Ethiopia (Hillman, pers. comm., 1991).

The Ethiopian Wildlife and Natural History Society, established in 1966, is probably the main conservation NGO in Ethiopia. The Society's objectives are to: conduct and support research concerning Ethiopia's fauna and flora; and disseminate information and create an awareness of the need for the conservation and wise use of Ethiopia's natural resources and the environment. The Society's activities focus on biodiversity conservation and environmental education. Recent projects include the Simien Mountains national park survey, in collaboration with Swiss NGOs and the University of Zurich, and the Important Bird Areas programme, in collaboration with BirdLife International. The IBA programme has identified key sites in Ethiopia for biodiversity conservation using birds as indicators (Nievergelt, Good & Güttinger, 1998).



## **Administration & Management**

The management of wildlife and natural areas in Ethiopia began in 1944 with the Preservation of Game Proclamation No. 61/1944. This law established a small force of guards to protect the Awash Imperial hunting grounds (now Awash National Park), as well as establishing an office in the Forestry Department of the Ministry of Agriculture to regulate the hunting of wild animals and to issue hunting licences (Hillman, 1993).

In 1965, following a visit by an UNESCO mission the previous year, a Wildlife Conservation Department and a Wildlife Conservation Board were created within the Ministry of Agriculture. The Department, a development of the hunting licence office, was responsible for the establishment, organisation and staffing of National Parks and other conservation areas. The Board had the responsibility of advising the Minister on the conservation and development of natural resources (Hillman, 1993).

The Wildlife Conservation Order No. 65 of 1970 established the Wildlife Conservation Organisation (WCO), previously the Wildlife Conservation Department, with responsibility for the creation and management of protected areas. The State Forest Development Agency Order No. 74 of 1971 established the State Forest Development Agency (SFDA), which was responsible for the management of state forests. In 1980, under the Forest and Wildlife Development Proclamation No. 192/1980, WCO and SFDA were amalgamated to form the Forest and Wildlife Conservation and Development Authority (FWCDA). The Authority was responsible for the management of Ethiopian forest and wildlife resources and the establishment and administration of protected areas. In 1984 the Authority was re-established as the Natural Resources Conservation and Development Main Department in the Ministry of Agriculture. In 1992 the Ministry of Agriculture was divided and a new Ministry of Natural Resources Development and Environmental Protection was established

from the Natural Resources Conservation and Development Main Department (Hillman, 1993). The new ministry was dissolved again and the Wildlife and natural resource conservation departments were put under the ministry of agriculture. Currently the management of most of the National Parks and forest reserves are the responsibilities of the agricultural bureaus of the various regional states and the federal government administers only two national parks, two sanctuaries, and one forest reserve.

## ***International activities***

At the international level, Ethiopia is party to the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), which it ratified on 6 July 1977. To date, seven sites have been listed under this convention, one of which is natural and six of which are cultural. Ethiopia is not party to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), and does not participate in the Unesco Man and the Biosphere (MAB) programme. At the regional level, Ethiopia is signatory to the African Convention on the Conservation of Nature and Natural Resources (African Convention), which establishes several categories of protected area.

The following is the list of international conventions to which Ethiopia is party (CIA 1999):

- Convention concerning the Protection of the World Cultural and Natural Heritage (6 July 1977)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (5 April 1989)
- United Nations Convention to Combat Desertification (27 June 1997)
- United Nations Convention on the Law of the Sea (signed but not yet ratified)
- United Nations Framework Convention on Climate Change (5 April 1994)



- Vienna Convention for the Protection of the Ozone Layer (11 October 1994)

### *Establishment of conservation areas*

The possibility of developing national parks emerged from a 1962 Unesco mission (Blower, 1971). Subsequently, surveys were carried out in 1964/1965 in most of the major wildlife areas (Blower, 1971). Arising from these surveys was a proposal to establish Awash, Simen Mountains and the Omo Valley as national parks, with a number of others to follow in due course (Blower, 1971). In 1969, Simen Mountains and Awash national parks were legally gazetted, while the 1960s, 1970s and 1980s saw the declaration of the majority of conservation areas throughout the country (UNEP-WCMC, 1991). Today, functioning national parks and sanctuaries cover approximately 2.5 million ha or about 2.1% of total land area (Figure 4).

Pursuant to Proclamation No. 192 of 1980, forest areas larger than 80ha were to be declared state forests and to be taken under government control for proper management. This stipulation was not recognized by local or regional administrations and the management of these areas was ineffective. As of 1988, only about 71,200ha of forest land had been demarcated, of which 69,000ha were designated as state forests (FAO, 1988). Following from the National Programme for the Conservation and Management of Forests, Wildlife, Soils and Water (NP-1986), high priority technical assistance projects were identified in the Tropical Forestry Action Plan for Ethiopia (TFAP) and included the survey, demarcation and preparation of maps and designation of high priority forest areas. Thirty-six priority forest areas covering 3.67 million ha were identified for conservation and production functions. The preparation of management plans for such areas was defined as a major activity, as was the survey and delineation of the boundary of around 4.6 million ha of natural forest (FAO, 1988). Today, a total of 58 national forest priority areas (NFPAs), covering approximately 4 million ha, or 3.3% of the total area of Ethiopia, have been declared

(Figure 4) (UNEP-WCMC, 1991; Kidane, pers. comm., 1991).

Certain recommendations to develop the protected areas network are identified in MacKinnon and MacKinnon (1986) and IUCN (1987). These priorities include the gazettement of declared conservation areas; protection of lakes Zwai, Langan, Awasa, Abaya and Chamo; the conservation of sandy beaches for nesting turtles; development of Gambella, Omo, Mago and Nechisar national parks; and the development and implementation of viable management plans for all conservation areas (WWF, 1988). Friis (1989) and Friis and Tadesse (1990) have indicated that the following areas are poorly represented in the current protected areas network: dry montane forest of the plateau and higher altitudes, riverine forest, deciduous woodland of the central Ethiopian plateau, deciduous bushland, semi-desert grassland and scrub, and of particular concern, montane rain forest of south-western Ethiopia. Montane rain forests would receive some protection through the gazettement of Bale Mountains National Park in the south-east, and through the protection of montane forests in Illubabor, Kaffu and Bale provinces (Friis and Tadesse, 1990; MacKinnon and MacKinnon, 1986). The need to support the Plant Genetic Resources Centre of Ethiopia in ecosystem conservation and in the establishment of genetic reserves in high forests and savanna for *in situ* conservation has also been recognized (FAO, 1988).

Initiatives aimed at the development of the protected areas network have been reflected in a number of plans and programmes over the past two decades. Notable among these has been the 1972 Plan for Action and Development of Wildlife Resources, the 1978 Plan for the Conservation and Development of the Wildlife Resources of Socialist Ethiopia, the Ten-year Investment Programme 1980/81-1989/90, the Ten-year Development Plan 1984/85-1994/95, and the Ten-year National Programme (NP-1986). Collectively, their objectives have been, *inter alia*, the establishment of conservation areas, the upgrading in status



of wildlife reserves, sanctuaries and controlled hunting areas as and when necessary, the preparation and implementation of management plans in all conservation areas, and the expansion and development of state forests (Dodds, n.d.; FAO, 1988; Moore, 1982). A target of the NP is the establishment of three new wildlife reserves and the development of eight national parks (FAO, 1988). In review of the NP, the Tropical Forestry Action Plan (TFAP) has recommended the development of three national parks and three wildlife reserves. Further, the EWCO has requested assistance from Wildlife Conservation International and the New York Zoological Society for the preparation of an Action Plan for Wildlife Conservation in Ethiopia which will, *inter alia*, review the present status of the country's conservation areas and make recommendations for their future designation, management and financial requirements (WWF, 1988).

With respect to conservation areas, resources have been directed to the development of national parks and sanctuaries, which, in practice, are treated almost equally, since sanctuaries are set up to conserve threatened wildlife taxon and the production of harvestable animals is not permitted (Ashine, pers. comm., 1989). While still more or less recognised, wildlife reserves and controlled hunting areas exist on paper only (Hurni, 1986; Hillman, pers. comm., 1988). While Gambella National Park has virtually ceased to exist as a conservation area, Yavello Sanctuary has been taken over for a livestock project, and Bale Mountains National Park has suffered from uncoordinated development in and near its boundaries (Hillman, 1986a; UNEP-WCMC, 1989). Further, Simen Mountains National Park is listed as threatened by the IUCN Commission on National Parks and Protected Areas.

#### 4. How successful is the conservation scheme in Ethiopia?

By simply evaluating the status of the forest coverage of the country starting from where the conservation process started in the modern sense it would be possible to make

an assessment, however roughly, of the successes of the initiatives and their tools

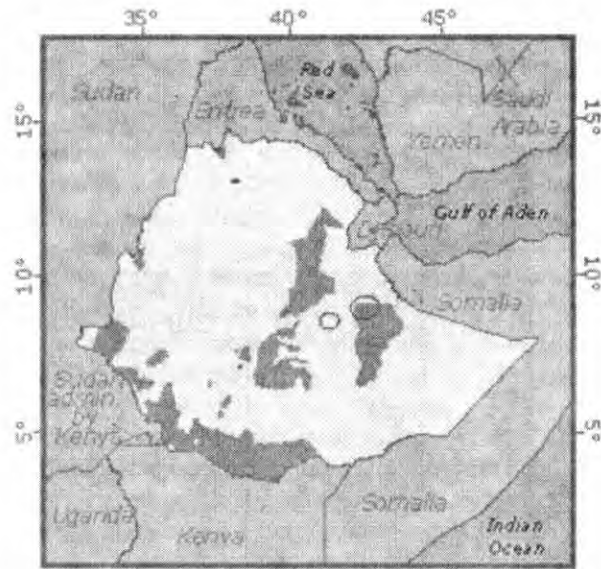
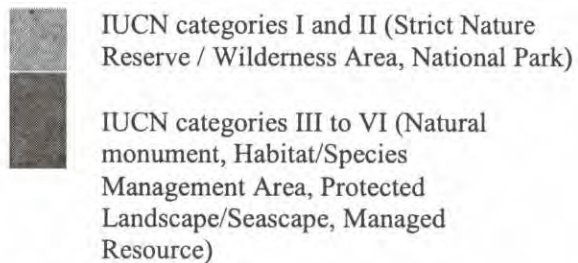


Figure 4 The network of protected areas in Ethiopia



designed for the preservation of Ethiopia's forests and wildlife.

Gamachu (1988) has estimated that 34% of the total area of the country (and about 87% of the total area above 1,500m) was originally covered by dense forests and a further 20% by woodland/savanna (UNEP-WCMC, 1989). By the early 1950s, forest cover was estimated at 16% and by the 1960s, 7%. Today, the area under closed forest cover is 4.47 million ha, representing approximately 3.6% of total land area, with 9% of the area above 1,500m still covered by closed forest (FAO, 1988; UNEP-WCMC, 1989). One quarter of the highlands are seriously eroded, another quarter moderately eroded and only 20% are free from the erosion hazard (IUCN, 1986).



It can easily be seen from the review of forest status that the proportion of the land covered by it in Ethiopia have declined by more than 95 % from what it was at the beginning of the institutionalized conservation programs in the country. This clearly shows that conservation initiatives have failed and they have done so beyond any proportion.

Table 1 shows the FAO estimates of forest cover in year 2000 and the annual change rate between 1990 and 2000, together with an explanatory note and references consulted. The estimates are based on examination of inventory reports and other documents and are part of the results from the Global Forest Resources Assessment 2000.

COUNTRY/ REGION	FOREST COVER	FOREST COVER CHANGE 1990-2000	
	[ha]	[ha/year]	[%/year]
Ethiopia	4,593,315	-40,295	-.8

Table 2 shows, the forest cover at the latest available reference year.

COUNTRY/ REGION	REFEREN CE YEAR	TOTAL AREA ('000 HA)							
		Land area							Inland water
		Forest			Other wooded land		Other land		
		Close	Open	Plantat	Shrubs/Trees	Forest fallow			
Ethiopia	1997	1,008	3,504	0	32,796	0	73,121	0	
		%	%	%	%	%	%	%	
Ethiopia		.9	3.2	.0	29.7	.0	66.2	.0	

## 5. Major constraints of the conservation process in Ethiopia

### *Policy and Legislation*

As early as 1972, the Plan for Action and Development of Wildlife Resources listed several major problems in wildlife conservation, including *inter alia* failure of existing legislation and enforcement (FAO, 1988).

### *Institutional setbacks*

There are a number of constraints to protected areas management. The NRCDMD is in need of a strong and properly trained staff for the overall planning, monitoring, evaluation and coordination of management activities at the national level (FAO, 1988). As of 1988, the trained staff consisted of 106 degree holders, 724 diploma holders and 415 certified holders as against an estimated demand of 935 degree holders, 1,300 diploma holders, 4,700 certificate holders, 200,000 Natural Resource cadres and 350,000 peasants by the year 2000 (FAO, 1988). The EWCO is virtually powerless to enforce regulations and to develop and implement management plans for most protected areas due to basic shortages in manpower and resources (Ashine, 1983; UNEP-WCMC, 1989; WCO, 1985; WWF, 1988). Management of conservation areas suffer from poor communications and infrastructural facilities, lack of transportation networks, making many areas inaccessible; a lack of local awareness concerning conservation goals and values; and a lack of basic scientific information upon which to make sound management decisions (Hillman, 1986a; Hurni, 1986; WWF, 1988). Forest reserves are mostly inaccessible, are poorly managed, and also suffer from a lack of funds and resources (FAO, 1988).

### *Commitment to international agreements*

Mainly as a result of absence of clear direction that gives mandate for appropriate institutions the responsibility of implementing programs that are direct consequences of international agreements have caused donor frustration and resulted

in the dwindling in the amount of international money that is badly needed to sustain conservation initiatives.

### Over utilization

As a result of accelerating population growth, expanding agriculture, overgrazing, fuel wood demand in and around settlements, and uncontrolled exploitation, forest cover has been drastically reduced and much land has become unproductive and seriously eroded (FAO, 1988; IUCN, 1986; WWF, 1988).

Threats to the protected areas system include: overgrazing and encroachment from nomadic pastoralists; shifting cultivation and permanent agriculture, including cash crop cultivation; human settlements, along with an increased demand and extraction of fuel-wood and building materials within conservation areas; uncontrolled fires; illegal poaching; charcoal burning; illegal fishing; and commercial cutting of wood in reserves such as Bale Mountains National Park (FAO, 1988; Hedberg, 1978; Hillman, 1986b; Hurni, 1986; Moore, 1982; UNEP-WCMC, 1989; WWF, 1988). These problems are exacerbated by a rapid population growth, civil unrest and famine in drought-stricken areas (Hurni, 1986; WWF, 1988).

### Forest fires

There are no forest fire statistics permitting an analysis of the causes, risks and extent of damage. However, general information on the causes and season are available which could reveal information concerning the timing of forest fires, which depends on the climate.

Every year, very large areas of lowland forests and grassland formations are affected by fires, particularly in the drier parts of the country just before the short-rainy season starts.

The effects of forest fires differ depending on environmental factors and the type of vegetation. Most fires are started by people. In the east and northeastern parts of the



country, the natural vegetation ranges from desert to grasslands and woodland formations. Grazing is the dominant form of land use. This vegetation is deliberately burned in order to induce the sprouting of fresh grazing vegetation for cattle. Sixty-five percent of the land area benefits from such a practice. Use of fire as an aid to hunting and to control tsetse fly and manage teak population are among the major causes of forest fires in the lowland areas.

In the highlands where there is rapid population growth, fires are used as the major tool to clear forest land and convert to agricultural land. Smoking out wild bees in order to gather honey is also another cause of forest fires. The traditional practice of using fire as a means to cultivating land for agriculture and the enormous demographic growth exacerbate the impact of forest fires.

In general, the causes of forest deterioration by fire are rooted in: (1) poverty caused by high rates of population growth and economic depression, (2) low agricultural productivity, (3) the insufficient attention of government policies to the longer term implications of a deteriorating natural resource base, and the use of many of the forest areas as a common property resource regardless of their suitability to sustain agriculture.

#### **6. What should be done to rectify the problem?**

Despite the efforts made by the Government in various sectors of forest and wildlife management, many chronic problems remain unsolved. Given a conducive environment for the conservation and sustainable development of the forestry and wildlife sector, the following issues are challenges: halting/minimizing the rate of deforestation; developing appropriate technologies to improve conservation, development and utilization of forest and wildlife products; development of forest wildlife resources to meet the demands of the ever-growing population of the country; rehabilitating degraded land; and maintaining the productivity of agricultural

land. It is essential to tackle issues in the following thematic areas in order to improve the already disastrous effects of the degradation of the environment in Ethiopia.

#### ***Policy and legislation***

Existing laws need to be reviewed and regulations enacted, including gazettement of all conservation areas (Ashine, 1983). To date, only Simen and Awash national parks have been legally gazetted. In addition, a number of national forest priority areas have been demarcated, but none has been legally established as yet (Kidane, pers. comm., 1991). Recommendations to expand the regulations relating to state forests and wildlife conservation areas include: definitions for the various types of wildlife conservation areas; procedures to be followed in declaring protected areas; and provisions relating to the management and administration of state forests, national parks and other conservation areas, including preparation of management plans (Moore, 1982).

#### **Capacity - Building, Education, Training and Awareness - Raising**

Forest and wildlife resources have economic, environmental and social functions. Some efforts have been made in the last ten years to implement some forest conservation and development measures, and to reduce the pressures on the remaining forests. A Participatory Forest Management (PFM) approach was introduced into the country to ensure the involvement of the local communities in the conservation of these resources in such a way that they may share benefits accruing from the forests, and benefit in other locally relevant ways. Other activities have included forest demarcation and inventory, preparation of management plans, and federal and regional capacity building activities. There is an encouraging involvement of NGOs in the conservation and development of forest resources. It is paramount to double and triple these efforts before the remaining few resources are lost forever.



## Information

Without the availability of high quality information it would be extremely difficult to take effective actions at any level. A lot should be done to start and strengthen initiatives that ensure the availability of high quality information that would assist decision making and management.

## Research and technologies

It is quite sad to note that most of the trend information on the forest and wildlife resources of Ethiopia is quite crude and it is still impossible to make accurate proximate estimate of what still remains and what is lost. It is extremely important to develop standardized national forest and wildlife monitoring programs to generate the information that should be collected based on sound science.

## Institutional strengthening and financing

The current conservation organizations at the federal level should be given a mandate more than what they have now in order to build and expand their capacity in all fronts. The government must give priority to these sectors not as a requirement of a global bandwagon or political correctness but with recognition of their contribution to the maintenance of Ethiopia as a viable nation.

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### Editor's Note

The color maps when printed in black of white, are not as legible as the original color maps. We apologize for that.

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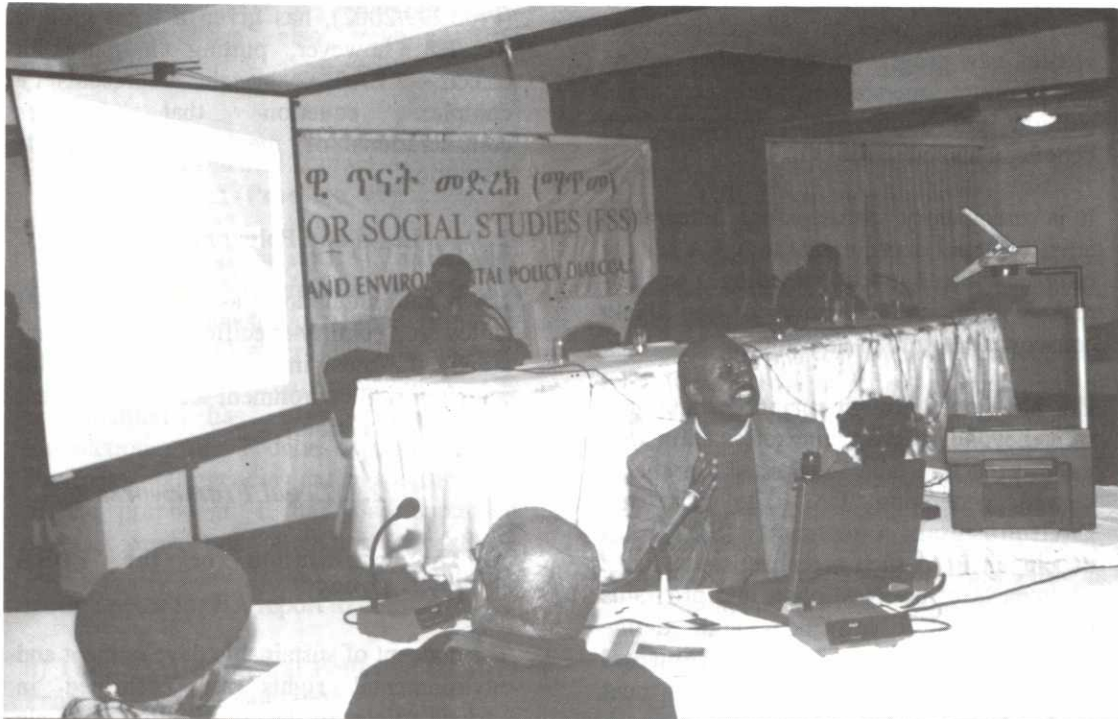


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# OVERVIEW OF ENVIRONMENTAL ASSESSMENT (EA) IN ETHIOPIA

Solomon Kebede, EPA

## 1. Background

Environmental assessment is a process to identify and evaluate the likely environmental impacts of a proposed project, new program, plan or policy, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

It is anticipatory, participatory, integrative environmental management tool. EA has the ultimate objective of providing decision-makers with an indication of the likely consequences of their decisions.

EA has gone through major changes and went beyond reactive, impact fixation to a more proactive and integrated approach, second generation EA. The **Strategic Environmental Assessment (SEA)** has developed from such a realization to focus on impacts of policies, plans and programs that eventually influence and define individual projects. **Environmental Sustainability Assessment (ESA)** is a "next generation" process; it is a framework approach to relate development proposals to the baseline condition of sustainable development, the regenerative and assimilative capacity of natural systems.

Integrated policy and project appraisal marks the (normative) end stage of current trends; it is a full cost analysis of the environmental, economic and equity effects of development options and proposals. This approach is also called **Sustainability Analysis (SA) or 3E-impact assessment**.

In Ethiopia environment has not featured on the development agenda in the past since the major preoccupation of the project evaluation and decision-making mechanisms have been based on short-term technical feasibility and economic benefits.

The establishment of the Environmental Protection Authority (EPA) in 1995 was a measure step in the history of EA in Ethiopia. Consequently, the approval of the Environmental Policy of Ethiopia (1997), has led a proactive policy foundation for EA.

The promulgation of EA proclamation (Proc.299/2002), has given a legal ground for EA, however, putting in place an effective EA/EA system represents a complex equation that requires considerations of many factors for its resolution.

## 2. Legal and Policy Framework

Laws and regulations as well as policies suited to country-specific conditions are among the most important instruments for transforming environment and development policies into action.

### 2.1. Legal Frameworks

#### A. The constitution of the FDRE (Proc.1/1995)

The concept of sustainable development and environmental rights are enshrined in various articles of the constitution. In article 43, *the Right to Development, peoples right to improved living standards and sustainable development, to participate and to be consulted with respect to policies and projects affecting their community are recognized. Similarly, in article 44: Environmental Rights, all persons are entitled to live in a clean and healthy environment as well as to compensation, including relocation with adequate State assistance has also been indicated.*

Moreover, in article 92: *Environmental objectives* it is declared that, peoples have the right to full consultation and expression of views; government and citizens have the duty to protect the environment.



**b) "Environmental Protection organs  
Establishment proclamation  
No.295/2002"**

In the proclamation the need to establish a system that enables to foster coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels is stipulated. The proclamation has also required the establishment of Sectoral Environmental Units.

**c) The Environmental Impact Assessment  
Proclamation (Proc. No. 299/2002)**

This proclamation has made it mandatory that development projects or public instruments (policies, Programs, Plans) have to be subjected to EA scrutiny. It means that EA is a legal requirement. The proclamation has also defined the jurisdictions of Federal and Regional environmental agencies and responsibilities of the proponent. It has also contained several provisions including incentives, punitive measures, and the minimum requirements for EA report to consist.

**d) The "Environmental Pollution Control  
Proclamation No. 300/2002"**

It is promulgated with a view to eliminate or, when not possible to mitigate pollution as an undesirable consequence of social and economic development activities. This proclamation is one of the basic legal documents need to be observed as corresponding to effective EA administration.

**2.2. Policy Framework**

**Environmental Policy of Ethiopia (EPE)**

Environmental Policy of Ethiopia (EPE), which was adopted in April 1997, supports Constitutional Rights through its guiding principles, including ensuring environmental sustainability, (minimize degrading and polluting impacts on ecological and life support systems), public involvement and the need to take into account the full

environmental and social costs or benefits foregone or lost.

The EA policies demand that the necessary legal, procedural, institutional and technical frameworks are developed for effective implementation of Policy requirements.

**3. EA Related Issues**

The major issues that compounded the effectiveness of EA administration in Ethiopia include technical, legal and institutional issues. Among which the following are cardinal:

**3.1. Effectiveness**

EA introduced in Ethiopian major social and economic mainstreams as a low profile entity and on a voluntary and non-formal basis. There are now some indications that the voluntary introduction is beginning to bear fruits.

In this regard, there is an indication that some licensing agencies have over years demonstrated their marginal willingness to voluntarily consider EA, once in a while as a requirement for issuing investment and business permits.

Similarly, with the help of donor influence some Sectoral developments Authorities have given nominal consideration for EA. Exceptionally, few organizations have even gone to the extent of establishing Sectoral environmental units to streamline environmental concerns in their development undertakings.

On the other hand, the general public interest in the fairness and effectiveness of EA process is beginning to show a sign of improvement.

Quite a few private and public sectors developers have also shown limited inclination to integrating environmental concerns in few project design and implementation. However, due to several factors effectiveness of EA is low.

As it can be seen in fig .1,below, between 1995 and 2003, for about 57 roads and 11-power projects EA has been conducted as a



result of donor demand. However, only half of the report was submitted to EPA for official review. This showed that donor agencies did not have a consistent policy integrating environmental concerns into development planning. The approval of half of the project without any formal review is an indication of such a failure. Even after review the comment has not been seriously considered

The donor agencies are now not willing to give technical and financial support for undertaking EA. What is commonly called the Institutional Development fund is no more available. In fact Donor agencies insisting that the government has to allocate some amount of the loan for EA aspects of the development. The government did not like the idea. This has accounted for the limited number of EA submitted for review. This has a drawback on quality of EA and commitments required for the implementation of Environmental management plans. This has become a source of conflicts among stakeholders. Moreover, donor agencies are not following the implementation of the EA recommendations.

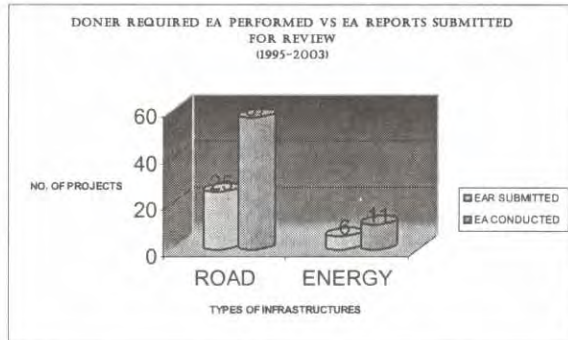
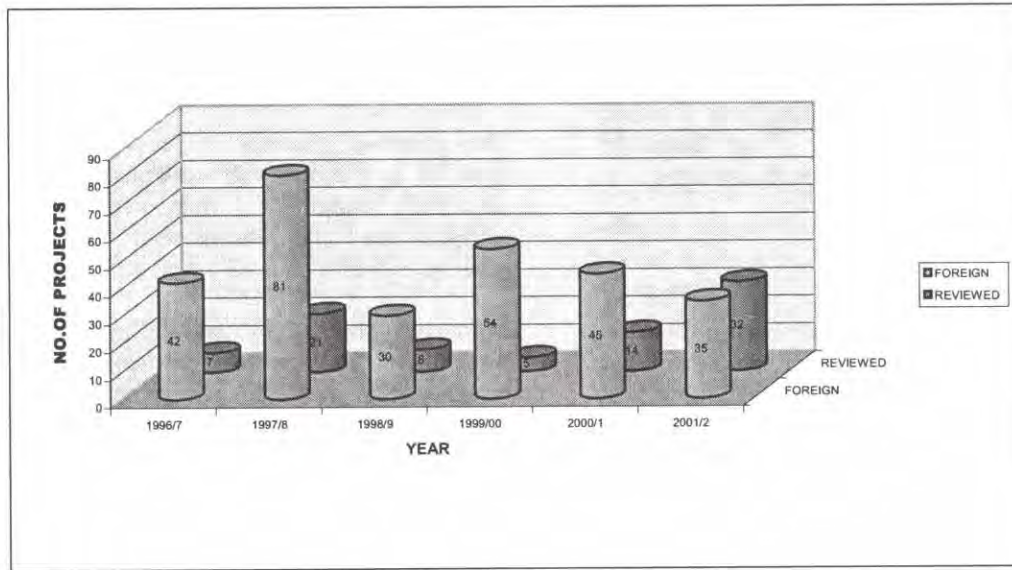


Fig.1. DONER REQUIRED EA PERFORMED Vs EA REPORTS SUBMITTED FOR REVIEW (1995-2003)  
 [Source: Ethiopian Road Authority, EEPECO, and EPA 2003.]

On the other hand, the number of projects approved by Ethiopian Investment Authority and that has been sent for review has shown a great deal of disparity. Such huge discrepancy occurred as a result of most of the project are approved without due consideration for environment. This can be drawn from only considering the investment permit given to foreign investors against the number of "EA report" submitted to EPA for review. (See fig.2 below). This findings display that how investment interests surpass concerns for environmental protection.

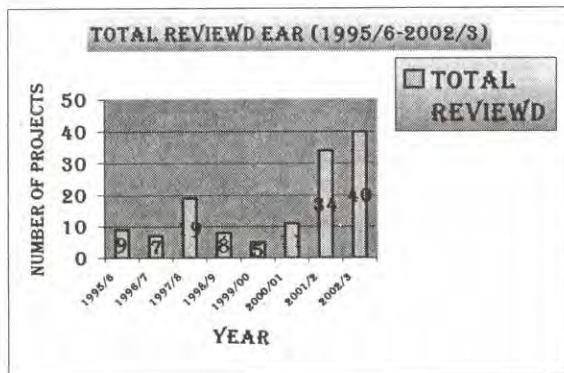






**Fig. 2. NO. OF FOREIGN INVESTMENT PROJECTS APPROVED VS REVIEWED**  
 [Source: EPA and Investment Authority, 2002.]

When we consider a general trend (see fig.3), with respect to the total number of EA reports submitted during the time between 1996/7 and 2002/3, the first five years is very low. However, the last two years have shown a little bit of improvement. The low level of effectiveness observed could be due to low level of awareness, absence of legal ground for EA, wrong assumption that EA will incur costs



**Fig.3. Total number of EA report reviewed between 1995/6 and 2002/3**  
 [Source:EPA/2003]

and delays approval of the project or investment, and limited political support for EA.

However, due to the enactment of EA proclamation and improving awareness it is expected that the number of EA report that will be subjected for review will be on the increase.

### 3.2 Relationship between project cycle and the EA process

The fundamental premise is that the stage in the EA process should be linked to the corresponding stages in the project cycle.

However, the practice in Ethiopia has shown that almost all "EA-reports" submitted for approval while the projects are at the operation phase. This is basically in the contravention of the basic principle of EA that environmental concerns require an early consideration at project conceptualization or planning stages. This is mainly due to investment license, operation permit are issued or loan is granted before environmental clearance has been obtained. The underling cause for that is absence of willingness and synchronization of activities among the donors, permit issuing authorities and environmental agencies.



Because of such loose connection or absence of useful linkage between the EA and the project cycle, important considerations such as alternative considerations, proper public participation, and design of environmental management plans has been constrained.

### 3.3. Institutional Issues

According to proclamation provided for the establishment of Environmental protection agencies (proc. 295/2002), EPA is mandated for the establishment of system for EA at federal level. The same proclamation requires each Regional state and every Competent agency to establish or designate Regional environmental agency and Sectoral environmental units, respectively.

The responsibilities of reviewing of EA reports of project that are subject to federal licensing, execution or supervision, projects with transregional impacts as well as regulating their implementation is vested upon EPA. However, at regional level, the respective environmental agencies are endowed with the same power.

Addis Ababa city Administration, Oromia, Amhara, Benishangul-gumuze, Afar and SNNPRS has established their respective Environmental agencies. The remaining States are in the state of formulation of equivalent agencies.

Oromia's and Amhara are mandated for natural resources development and environmental protection responsibilities, while Addis Ababa city Administration Environmental Protection Authority is mandated to play a regulatory role.

This arrangement mixed up the regulatory role of protection with that of management. Otherwise, all of the regional agencies that have been established so far include in their mandates some kind of responsibilities in EA administration.

At Sectoral level, except few agencies such as Ethiopian Road Authority and Ethiopian Electric power Corporation, those already established "Environmental Monitoring Units" as a result of financier requirement, long before the enactment of EA

proclamation; in other competent agencies, no attempt has been yet made to establish environmental units.

The common features of environmental agencies in Ethiopia are weak institutional standing, limited manpower, poor infrastructure and inconsistent political support, as well as not very well define role.

Moreover, absence of well-defined roles, functional linkages and partnership, and binding legal procedures and networking and follow-ups, further stunted their development. In addition problems associated with financial and trained manpower contribute to the prevailing weakness of these institutions.

### 3.4. Cost and time

The cost depends on types of project, its size, the methodologies and techniques used, its timing, the data, scope, caliber of the consultant.

The time required to prepare an EA, and the resulting cost, vary with type, size and complexity of the project; the characteristics of its physical, socio-cultural, and institutional settings, and the amount and quality of data already available. EA needs as much time as feasibility study, of which EA is essentially a part. Therefore, EA can take less than six months to more than 18 months to complete, but many require about 12 months. Properly conducted EA do not delay projects, on the contrary, in many cases, they have shorten the total time from identification to operation, by revealing promptly environmental issues that might have halted work altogether, had they emerged at latter stage.

EA preparation cost rarely exceeds one percent of the total capital cost of the project and is frequently less than that. The cost of implementing mitigation measures can range from 0 to 10 percent of the total project cost, with 3 to 5 % being common. These estimates do not take into account possible cost saving from implementing EA recommendations that reduces and avoid costs of environmental impacts or allow



environmental objectives to be met in a more cost effective manner.

### **3.5. Incentive Structure**

Most of the environmental protection proclamations, especially EA proclamations have provided for incentives. However, neither environmental fund has established, nor eligibility criteria have developed for the instrument of incentives.

The provision for incentive stated in EA proclamation has failed to exploit existing investment incentive opportunity for the benefit of ensuring sustainable development.

It is therefore, important that environmental fund establish and a well-defined incentive structure develop for effectiveness of EA administration. It is a strategy to support an extra mile efforts and initiatives to ensure environmentally sound, economically viable and socially acceptable development.

### **3.6 Public Participation.**

In spite of People's constitutional right to participate and to be consulted with respect to policies and projects affecting them, opportunities are often given to the public to proactively and meaningfully participate in the EA process and decision-making.

Furthermore, whenever there are claims that opportunities were given, there is no mechanism to verify that if it was genuine.

The environmental assessments carried out so far predominantly denied the people's right to an early participation. Most of the time the public interest has been pushed aside by economic and political interests.

The prevailing poor state of public participation can also be linked with lack awareness about EA process. The wrong assumptions that EA is too technical for local or common persons to be easily understood the subject, and that participation prolongs project approval are hindrances for public involvement. Moreover, lack of welldefined framework to ensure public participation is central to the cause of the problem.

Fear of raising public expectations and the wrong perception or interpretations of public opposition to negative impacts as anti government protest, has also contributed to the absence of strong public participation.

Good public participation will ensure fairness and avoid conflicts by improving public acceptance of the project. It is important for the sustainability of the development.

### **3. 7. Technical Competence**

In Ethiopia, most people are trained in use oriented and sector development basis. Therefore, the trained human capital to address a crosscutting issues like impact assessment is virtually non-existent.

As a result a trained human resources in area of Impact Assessment, including Ecological, Health and Social risk assessment is not easy to find. Similarly, competence in Environmental Economics and accounting, Strategic and Sustainability impact assessment as well as environmental law is deficient. Further in ability and absence of experience to use different methods such as mathematical models, GIS, statistical techniques, experiments, etc are affecting the accuracy of impact predictions and design of appropriate mitigative measures. The desired human resources and physical competence is not available at the public and private sectors. Substandard EA and poor quality EAR is the reflection of this reality.

Therefore, capacity-building efforts needs greater attention both in public and private sectors.

### **3.8. Common Errors in Environmental Assessment**

In most EA conducted biophysical and socio-economic baseline assessment is very poor. Alternatives consideration is grossly disregarded. Most of the time consultants are argued for only no option scenario. EA carried out so far under undermine the current and cumulative impacts of a development proposal. The Environmental Management Plan (EMP) required for the



containment of impacts is not only well designed in a participatory manner, but also financial, human resource, structural commitments has not been provided for its the realization. In general; methods, parameters, time frame, risk communication, and responsible bodies to implement EMP have not been clearly described. Compensation arrangements are not based on consensus.

Macro economic policies, plans and development and strategies are prepared based on political decisions, with out much concerns to environment. Recently enacted EA proclamation included the need for such public documents to be subject to EA. However, up on breaching this legal requirement, the proclamation is silent as the type of punitive measures to be taken. Thus, the Current EA legal System is weak in this respect and stands from the point of regulating impact fixation as related to projects.

### **3.9. Decision Making**

EA decision-making solely rests on the content of ER. There is no mechanism to verify if the statement is true or not. In addition, it is a single step procedure, and there is no way to monitor the implementation of the condition of approval on a project cycle basis or to recover the mistake of a hasty decision. A procedure such as public hearing is followed in some country to take into account concerns of the Interested and affected parties during decision-making. This arrangement is not possible in Ethiopia. Public hearing requires appropriate framework, financial in puts, time, and experience in dealing with raised public expectations and handling of politically volatile situation. Besides, the proponents assume that EA is already a costly and time taking exercise, additional procedure will make it even more costly and time taking. There is already a political pressure to make decision in a very short notice.

It should be emphasized that EA is not a procedure to prevent actions with significant environmental impacts from being implemented, although in certain

circumstances this could be the appropriate out come of the process. Rather the intention is that actions are authorized in the full knowledge of their environmental consequences. Because EA takes place in a political context, it is therefore inevitable that economic, social, or political factors will out weigh environmental factors in many instances. This is why the appropriateness of mitigation measure becomes central to decision making.

Thus, for good decision in EA it is essential to improve public participation and EMP.

## **4.. Brief summary of EA cases**

The following are the brief summary of EA cased from selected sectors.

### **4.1. Road sub sectors**

#### **Awash- Kulubi-Diredawa- Harar Road**

This includes an environmental analysis of five Road Projects chosen for rehabilitation and/or upgrading.( May 1997.)

The road crosses 3-adminstrative states with in Ethiopia, and eventually links to Djibouti and Somalia.

Major environmental impacts considered were soil erosion, limited impacts on natural environment. It was indicated that there would no impact on ecologically sensitive areas.

With respect to human and social environment, the impacts of the construction phase have been noted as a temporary problem.

The displacements of some people (i.e. about 120 households) described as unavoidable consequences. Besides, the loss of agricultural land (for one or two years) has also been anticipated.

The impact of the work force (150-250 persons) on local community is also expected. Alternatives analysis was made only by comparing the project to the "zero alternative".

It was proposed that care would be taken not to pollute watercourses by fuel and



lubricants, and to minimize sedimentation. Furthermore, controlling excessive noise and dust, avoiding mature trees cutting during detouring, and rehabilitation of quarry sites were considered as part of mitigation measures.

Creating opportunity for public to comment on the compensation arrangement has also been identified as a key factor. Finally monitoring plan has been suggested.

However, the public has complained about the implementation of this project. Consequently, EPA's technical mission sent to the site. The team has come with the following out come Improper placing of plastic tubes intended for water passage has created a threat to flood agricultural, grazing lands, and residential areas. Similarly, the local communities also anticipated increased soil erosion.

There was also cutting of a large number of trees without consultation of the concerned parties or mitigation measures arrangement for reforestation.

Compensation was given only for 43.14% (129 persons) of the total people entitled for. However, the issues of compensation were well addressed in the EA report.

In general the main problem identified by the team was the improper implementation of EMP. Thus the team has recommended for proper implementation and strong adherence to what has been stated in the EMP of the project EA report.

#### **4.2. Ethiopian Power System Expansion Master Plan (EPSEMP) report**

This study had shortage of environmental data and no effort was made during the current study to acquire additional field data to improve the accuracy of the information on the environmental impacts of the projects. The report has acknowledged the scarcity of environmental data to conduct the environmental study analysis at the fullest scale and best accuracy.

The report has recommended the need for monitoring of change in the environmental quality in the future, but it did not provide for the monitoring plan. The report had not indicated the cost for environmental management.

The public participation was limited, and the study recommends detail impact assessment on population, ecological, public participation, compensation, the downstream areas of the reservoirs, but no timetable and budget is indicated.

Attempt has been made to assess alternative energy sources, but due to lack of data and predetermined notion that hydropower is the best alternatives, no clear analysis presented.

To compensate data scarcities the present study has adopted the Nepal Model. According to the model the parameters considered for the environmental analyses are land lost by inundation, estimated number of people for relocation, change of access, culture, downstream impact and hydrological system. No ecological information was included. The basis for the categorization of impacts as low or medium is not clear. The anticipated impacts of each project are tabulated below.

Table 1 Environmental impacts of each project

No.	Project site (name) and location	Anticipated relocation of people	Inundated area (in hectares)	Range of environmental impact (according EPSEMP)	Down stream impact
1	Aleltu west, North of Addis Ababa	4150	1200	Medium environmental impact	Low
2	Aleltu east, North of Addis Ababa	4150	4015	Medium environmental impact	Low
3	Beles, close to Lake Tana				Medium
4	Chemoga-Yeda, near Debre Markos	6652	6469	High environmental impact	low
5	Halele-Werabesa 160km SW of AA, Omo River Basin	635	25662	Medium environmental impact	medium
6	Genale 2 & 3, NW of Negele	10394	7390	High environmental impact	high
7	Baro 1&2, Baro-Akebo Basin	905	7705*	Medium environmental impact	Low
8	Geba 1&2, Yayu, west Ethiopia	634	12483*		Low

\*Grazing, forest, woodland and cultivated land

From the above table the Environmental impact can be summarized as the total number of people to be relocated is 27,338 and the total land to be inundated is 64,914 hectares

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## URBAN ENVIRONMENTAL DEGRADATION

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### 1. INTRODUCTION

#### What is Environment?

For various reasons, the words urban\* and environment are characterized by a bewildering array of meanings to the extent that comparisons between two discourses on topics like the one at hand are a Babel's Tower or as good as impossible to parley on the same wavelength. This is more prominent with the first than the second. To appreciate the nature of the hitch that this problem introduce it worth probing into the meaning of the following quasi questions. Which of the following queries are really environmental questions:

- A decent housing?
- Streets that are safe?
- Are schools good?
- How many boast of gainful employments?
- Are there parks, libraries and other amenities that make life pleasurable?
- A day in the life of a garbage picker?
- Please some more (Oliver Twist)?
- A traffic jam/accident?
- Moving into town?
- Violence and drug abuse?
- The internalization of external costs?

The answers to the questions supra, of course, depend on the meaning that one opts to don the two words, in particular, to the word environment.

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\* When it comes to the word urban, as it is a statistical concept defined by a country's government based on a threshold number of inhabitants, there a bewildering array of definitions proffered that the word defies categorization (for instance, a few hundreds for Peru and Uganda, 2,000 (?) for Ethiopia, and 10,000 for Senegal and Italy).

It is not uncommon to stumble upon a variety of definitions; in fact, there is a welter of definitions flagged around the world. The definitions, however, are amenable to the following broad classification: narrow and broad definitions.

#### *Narrow Definition*

In this definition, the environment is limited to the physical or the biophysical environment, namely, air, land and water. Accordingly, the scope of urban environmental degradation boils down to discussing only urban air, water and land pollutions.

#### *Broad Definition*

*Webster's New World Dictionary* defines the word environment as:

“all the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms”.

In a more or less similar fashion, the three Ethiopian legislation enacted recently define “*Environment*”:

“as the totality of all materials whether in their natural state or modified or changed by humans, their external spaces and the interactions which affect their quality or quantity and the *welfare of humans* or other living beings, including but not restricted to, land, atmosphere, weather and climate, water, living things, sound, odour, taste, *social factors*, and aesthetics”.

Consequently, the two above definitions, being all-encompassing, subsume “everything we see, smell, feel, or hear”, including, “not only trees and sidewalks but also noisy neighbors, litter in the street, abandoned houses, and polluted air”.



### 3. **THE CORPUS OF URBAN ENVIRONMENTAL DEGRADATION**

So long as one subscribes to the broad definition, and, in particular, when the place one allots to socioeconomic concerns is substantial, the forms of urban environmental degradation tend to come in various shapes and sizes. Some of these are:

#### **a) Urban form:**

Although the hallmark of urban settlements is the concentration of people and their activities, many urban areas have dispersed form in that they are sprawling settlements. The demand of sprawling settlements for infrastructure, essential services and transportation is so high when compared with compact settlements that they trample under foot efficiencies of scale that concentration or agglomeration makes available, thus ushering in unsustainable development, the more so in cash-strapped developing countries like ours.

The urban form of Ethiopian towns and cities is the sprawling type that urban services are expensive, unaffordable and in perpetual short supply.

The way out of this state of affairs is a judiciously enforced urban planning with emphasis on fixed boundaries.

#### **b) Urban poverty:**

Cities in developing countries harbor huge populations of the urban poor who are shut off from the benefits of economic growth. Many live in vast squatter settlements, where they are exposed both to the hazards resulting from economic growth, such as industrial emissions, and to the hazards that accompany poverty. Population living below poverty line in Africa has grown because of the region's poor macroeconomic performance.

The poverty level in Ethiopia is believed to have worsened more due to repeated bouts of drought-cum-famine and war, giving rise from children's homelessness and street life to the so-called "poverty diseases" such as

diphtheria, tuberculosis, and hepatitis, as well as the raging AIDS epidemic.

#### **c) Population growth and migration**

Developing countries are experiencing rapid population growth, usually accompanied by high levels of poverty, limited progress for women, and high levels of internal and international migration. Such rapid growth places enormous pressure on natural resources, urban infrastructure and services, especially in poorest countries like ours where growth is not rapid or even stalled.

*Migration is expected to be a major factor in the coming years in regions with large rural populations, especially those where rural poverty is rampant, as in Africa and parts of Asia.*

Population growth in urban areas is further buffeted by the urban influx. Ethiopia is now only about 15 percent urban, but a rather explosive growth seems underway, at roughly 4 percent per year, as migrants are fast being pushed out of rural areas by such factors as poverty, lack of land, declining agricultural work, war, and famine.

Policies that influence fertility rates – provision of family planning services, alleviation of poverty, and improvement in education, health care, and economic opportunities, especially for women – can have a marked effect on future population levels, including migration.

#### **d) Clean water:**

One environmental consequence of growing populations is increasing pressure on natural resources. Demand for water is growing rapidly as populations and industrial activity expand and irrigated agriculture (the largest use in the rest of the world) continues to increase. From 1940 – 1990, for example, withdrawals of freshwater from rivers, lakes, and underground aquifers increased by a factor of four.

In general, the water supply coverage in Ethiopia is one of the poorest in the world.



This is one of the factors that explain the preponderance of communicable diseases in the country.

Policies that improve the efficiency of water use, avoid waste, and preserve supplies (by controlling water pollution and maintaining watersheds) can markedly extend the availability of scarce supplies. Particularly important are more efficient irrigation systems, appropriate water pricing and removal of harmful subsidies, upgrading and improved maintenance of urban water distribution systems, control of treatment of industrial wastewater and urban sewage effluents, and cooperative management of shared watersheds and river basins.

#### **e) Sanitation**

One of the greatest threats to human health in the developing world is the lack of adequate water and sanitation services such that it said that improving access to clean water and sanitation to be as "the single most effective means of alleviating human distress".

Poor sanitation poses health hazards through several routes- including direct exposure to feces near homes, contaminated drinking water, ingestion of fish from polluted waters, and ingestion of produce that has been fertilized by wastewater.

The proportion of the urban population covered by sanitation services in this country is very small. For instance, more than 29.2 % of the residents of Addis lack any kind of sanitary service, even the simplest pit latrine. Only 12 percent utilize private toilets and 54.3 percent make use of either communal or public (sic) toilets. 90 percent have no built-in bathing facility. Many, therefore, are forced to recourse to open defecation on land or in watercourses.

#### **f) Wastewater Disposal:**

The estimate of sewage discharged directly into rivers, lakes and coastal waters without any kind of treatment in the developing world stands at 90 percent.

This state of play in Ethiopia is much worse off as no city in the country is blessed with a full wastewater collection and treatment facility except perhaps for Addis, as it boasts of a sewer line that is only 110 km long (i.e., 3.7 percent of what the city needed in 1997) and a lone treatment facility designed to cater to a mere 200,000 users and as far as things stood out in 1997 not even fully utilized. For this reason, most wastewater finds its way into the city's river system.

What is sad about these rivers flowing through and out of Addis, which are literally open sewers, found various use, including for drinking water, in the countryside girdling Addis.

#### **g) Solid waste management:**

Waste accumulating, uncollected, in the neighborhood poses more serious problems than the waste at the city dumps.

Cities generate tremendous amounts of solid waste, and those amounts increase with income. In cities of the developing world, 20 to 50 percent of the solid waste generated remains uncollected (35 percent for Addis), even though up to one half of local operational expenditures often go toward waste collection.

In low-income or squatter settlements, garbage collection is often nonexistent, either because these settlements fall outside "official" service areas or because trucks are unable to maneuver along narrow, unpaved streets. Uncollected domestic waste is the most common cause of blocked urban drainage channels, causing, among others, untimely destruction expensive paved roads. Even if collected, municipal wastes remain a problem in many cities in developing countries. A good example is Addis Ababa.

Municipal solid waste sites often handle both domestic and industrial wastes, including hazardous ones. Without proper disposal, toxic chemicals can leach into water supplies.



## **h) Indoor air pollution**

In poor cities, and particularly their poor neighborhoods, the most threatening environmental problems are usually those close to home. The dangers of exposure to environmental risks are high, especially for women and children. There is often more exposure to air pollution in smoky kitchens than outdoors.

Indoor air pollution from burning low-quality fuels, such as charcoal or dung, has been considered mostly a rural problem. Yet many urban residents of the developing world rely on biomass fuels for cooking and heating. In many smaller urban centers in Asia and Africa, between 50 and 90 percent of domestic energy supplies come from these materials. In our case it is 94.8 and 99.9 percent for urban and rural Ethiopia, respectively.

Indoor air pollution contributes to acute respiratory infections in young children and chronic lung diseases and cancer in adults. Acute respiratory infections, principally pneumonia, are the chief killers of young children in developing countries, accounting for an estimated 10 percent of the total burden of disease. Smoke contributes to acute respiratory infections that cause an estimated 4 million deaths annually among infants and children.

## **i) Housing**

Throughout the cities of the developing world, anywhere from 30 to 60 percent of a city's population lives in substandard housing. Unable to afford even the lowest-cost housing, many of the poor build their own makeshift shelters out of cardboard, plywood, or scraps of metal. Overcrowding increases the risks of airborne infections and accidents. Many poor neighborhoods are often unserved by water and sanitation facilities and garbage collection.

The urban poor are also forced to make trade-offs between affordable housing and environmental safety and protection. Squatter settlements are often located on land no wants – whether on flood plains or

steep hillsides, where they are vulnerable to flooding and mudslides.

A 1997 report of the City Government of Addis Ababa showed the alarming state of residential housing dearth, some, 222,000 units! The gloomy part of the story is that 65% of these housing units were then over 25 years old and one can discern the degree of virtual dilapidation the city is wallowing in.

## **j) Traffic congestion**

Congestion is one notable example of infrastructure failure. Congested city streets slow the movement of goods and services and generally increase the price of doing business in cities. Not only does traffic congestion allocate time to unproductive waiting, but it also results in inefficient fuel use, worsening air pollution, and ever growing traffic accidents. Indirectly, congestion also reduces productivity by adding to workers' stress and aggravation.

Problems like congestion require more complex, comprehensive actions. By integrating land use and transportation planning, cities can reduce both congestion and pollution.

Although Addis is the poorest city in Africa for both the number of vehicles it boasts of and the quality and quantity of its road network, it has recently grown to be the most notorious city in terms of traffic accidents.

Policy action would have to be undertaken at a higher level, modifying road networks and land use patterns, increasing the diversity of transport options, and increasing the costs of owning and driving motor vehicles.

## **k) The travail of urban life for women**

Urban women are subject to plethora of woes. For instance, they face increased health risks, largely because of their social and economic roles, which expose them to greater numbers of environmental hazards. Women are usually responsible for taking



care of sick children, increasing their direct exposure to disease-causing organisms.

Prostitution, with its predominantly urban focus, is endowed with a host of health risks, from sexually transmitted diseases such as AIDS and gonorrhea to physical abuse.

Violence against women-within and outside of the home-has been increasingly recognized as a prime threat to women's well being in both the developed and the developing world. Although this by no means a strictly urban phenomenon, its incidence is high in cities and may be increased by psychosocial factors such as stress associated with poor urban housing, inadequate income, and lack of equal opportunity to employment or education, although the precise links between these stresses and violence are not well defined.

### 3. POLICY INGREDIENTS

(for consideration in the service of better urban environment)

The enormous toll urban environmental problems exact - in terms of losses to human health and quality of life, natural resources, and economic productivity - makes a compelling case for action.

Policy, as bridge or nexus between potential and its actual realization, has to precede the body of actions to be enunciated as the best means to tame problems of urban environmental degradations.

#### a) Providing for the urban poor

On a global scale, the most urgent challenge is to provide for the basic needs of the urban poor and thereby alleviate the toll of human misery associated with degraded urban environment. Throughout the cities of the developing world, meeting this challenge will entail activities ranging from providing fundamental urban services such as water and sanitation and garbage collection to reforming land tenure policies.

Much is to be gained from encouraging income-generating activities, such as waster

recycling, that simultaneously improve livelihoods and the local environment. By doing so, cities can capitalize on what has been called the "incidental greening" of cities-the efforts of the poor to manage their environments.

Equally important is the recognition and support of the rights of the poor to know the risks to which they are exposed, to determine their priorities, and to meet their own needs through community initiatives.

#### b) Taking advantage of inherent potentials

The concentration of populations and activities in cities offers important economies of scale that can reduce not only the unit cost of providing services such as education or health care, but also the cost of providing vital infrastructure. Similarly, enforcing environmental regulations and collecting taxes are easier in urban areas than in dispersed rural areas.

The job creation potential of cities as well can be critical in reducing poverty. But these benefits of urbanization will only be realized when only concerned efforts of all stakeholders involved, i.e. *national, regional, local governments, the private sector, international agencies, communities, and citizens.*

#### c) Need for multi-pronged attack & coordination

*Issues of jurisdictional complexity complicate environmental management. By their very nature, urban environmental problems often require strategies that span jurisdictions and sectors.*

This is true whether the issue is delivering water and sanitation services or to low-income communities or protecting ecosystems from environmental degradations. Without adequate solid waste management, urban drainage systems will not work, because adequate solid waste management, urban drainage systems will not work, because garbage is most common cause of blockage.

Similarly, strategies to reduce air pollution will not work without addressing both stationary and mobile sources of emissions.



#### d) Informed citizens

*Equally important is an informed and vigilant citizenry that demands environmental quality and holds governments accountable, in the same way as it may do to any other environmental wrongdoer or thieving or insouciant bureaucrat/official.*

Indeed, some of the most innovative strategies for improving the urban environment are emerging from the bottom-up, from neighborhoods and communities that have the most at stake and as tax payers these are ultimately the ones that settle the bill and have to get their money's worth or more.

#### 4) CONCLUSION

As with most developing countries in Africa and Asia, urban life in Ethiopia is the future. Although urbanization in Ethiopia started in classical antiquity (e.g. Axum), its snail-paced development only accounts for 15 percent of the population. However, it is projected to grow by leaps and bounds in the coming years; for instance, the urban population in Ethiopia is predicted to double in only 15 years from now, of course with ever shortening doubling time.

What does this development mean in terms of urban environmental degradation? Its effect on rural environmental resources? Given the dreary picture we have been witnessing for the last 50 or 100 years (or, in general, since finding ourselves as junior partners in the international market), the future surely does not forebode good; immiserization, so far, riding roughshod with nothing virtually being done to tame or check it, is inflicting environmental harms literally left and right.

The continuity of life in this country is in great doubt. Our salvation, as much as our demise, is predicated to the sort of urbanization we are to resort to. We have to change the urban ways we are associated with presently, if the former is to prevail over the latter. Now is the crossroad. We have to brook no delays.

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