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The Earth will take care of you

# FORUM FOR ENVIRONMENT

A Platform For Environmental Advocacy And Communication Among People  
Concerned With The Ethiopian Environment.

## Summary for the results of the 2<sup>nd</sup> round consultation process of the Ethiopian civil society preparation for WSSD

In partnership with the Heinrich Boll Foundation

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# ENERGY AND SUSTAINABLE DEVELOPMENT

## Key concerns

- The United Nations International Panel on Climate Change (IPCC) recently determined that the increase of human-generated **Green House Gas** (GHG) concentrations in the global atmosphere, was beyond reasonable doubt inducing, as many had long **contended**, the gradual rise in temperature of the earth's atmosphere, leading to weather extremes and changes of climate in many parts of the world in recent years. In turn this is leading to rapid degradation of ecosystem balance and biological diversity, everywhere, endangering human, animal, and plant health and survival. The sustainability of the development style dominant in the industrialized world and its imitation in developing countries is therefore being questioned.
- Carbon monoxide, carbon dioxide, soot and other GHG emissions are produced at combustion of biomass fuels. Inhaled over long periods of in time poorly ventilated areas, the gases caused by the in-door burning of wood, charcoal, crop residues and dung in open fires, cause the respiratory diseases particularly common among Ethiopian females and the infants they usually carry, who by tradition tend the fire place.
- Mining coal and petroleum fuels and their uses in transportation, industry, households etc. pollute the environment and adversely impact health, as does cooking with kerosene and coal. Poisonous to plant and animal life, the emissions pollute the local environment, giving rise to smog, ground level ozone and acid rain near and far.
- Removal of vegetation and timber from the land, including crop residues for fodder and fuel and other purposes, not only denies the soil protection against water and wind erosion but also removes the main source of organic fertilizer.
- Ethiopia's large areas of **Arid and Semi-Arid Lands** (ASAL), where annual rainfall is low and erratic, have from time immemorial suffered recurrent severe droughts. Changes in weather and climate under global warming predicted in environment models are already being experienced in these ASAL. Average annual rainfall is decreasing and more erratic. Severe droughts and flooding such as those experienced in the second half of the 1990's are recurring more frequently. Annual runoff into streams and rivers is declining, as are average soil moisture levels. Ground water, lake, river and reservoir water levels are falling. Higher rates of evaporation dry out the environment and forest and bush fires recur more frequently.
- **Where** more arid climate **prevails as in Ethiopia**, less water resources would be available **under global warming** in the environment for socio-economic development and higher standards of living including: less drinking and other water supplies for needs of rising rural and urban populations, lower hydro-energy potential resources for electricity supplies, less irrigation water for agricultural production for food security, industries and exports, less water for industrial, health care and other services.
- The low rates of biomass growth and survival will under such weather extremes, mean further lowering of the life support (carrying) capacity of the various ecologies in ASAL, as these desertify they will become less hospitable habitats for resident plants, animals and inhabitants.
- Consequences of reduced bio-productivity in biomass growth and survival include: Declining crop harvests, fodder and grazing for farm livestock and pastoral herds, and food security potential falling lower than the already precarious levels; Less biomass for traditional fuels, the main if not the only household energy source of the rural and urban

majority, and consequently; cooked food and hence nutrition levels even lower than at present; acute scarcity of biomass for the majority of rural and urban needs of wood and timber for construction, housing, furniture, **agricultural implements and tools**, household utensils, etc.; and lower agricultural production for rural cash incomes and for the export commodities that earn most of the nation's foreign exchange.

- Substantial bio-productivity declines in major ASAL ecosystems will further reduce already low yields of traditional agriculture, when outputs should rise faster than the food needs of Ethiopia's population, which is projected to grow to **120** million by 2025. Consequently food security levels will decline, and malnutrition, hunger and famines will become more widespread and recurrent in the country.
- Under global warming, vector borne and viral diseases such as malaria, sleeping sickness, etc. are becoming endemic at higher altitudes where formerly cooler temperatures year round ensured absence of such diseases making these favoured areas of human settlement in Ethiopia.
- One consequence of the decline in availability of biomass fuel per capita in most rural and urban areas is reduction of the daily intake of cooked foods. The consequences are adverse for the health and working capacity of the labour force. The health of pregnant and breast-feeding mothers and the growth and development infants and the young are also severely impaired.
- **Energy balances and population data in successive years taken together show declines in** per capita access to petroleum fuels and hydroelectricity supplies. This adversely affects economic growth and development, and often means the deterioration of production, services, levels of access to amenities, and enterprise revenues and earnings in Ethiopia. What are the implications of this declining energy access for the overwhelming majority of rural and urban populations and for achieving their hopes of raising themselves self reliantly out of impoverishment and towards sustainable development?
- **Energy balances indicate** households took higher shares of biomass, petroleum fuels (kerosene and LPG) and electricity supplies. Declines of the percentage of total energy used in the major productive sectors of agriculture and industry and in the service sectors mean, that *economic production and services essential to raise quality of life received declining shares of all available energy supplies*. The implications of this are disturbing.
- Traditional three stone stoves common in the majority of Ethiopian households have biomass energy end-use efficiencies of 5% to 10%. Over 90 % of the biomass energy content therefore goes into air convection and smoke without benefiting the cooking process.
- At 1% or less **as reported in energy balances since 1988/9 that disregard animate energy - the sole mechanical energy source accessible to the rural majority (and for all house household chores) in Ethiopia** - agriculture has the lowest percentage share of any sector in the national energy balance. As agricultural production absorbs considerable energy inputs, energy balances evidently indicate energy use in commercial agriculture only.

### **Main Achievements**

- **Construction and use of fuel-efficient stoves contributes to forest protection.**
- In the early 1990s, the Ministry of **Mines and Energy** introduced the "mirt" an improved biomass injera stove into the Addis Ababa market. The GTZ Household Energy/Protection

of Natural Resources Project (HEPNR) **under the Ministry of Agriculture** is promoting this initiative on a larger scale

- **The level of awareness of the importance of tree planting is at an all time high though the survival rate of the millions of tree seedlings planted remains low.**
- **Ethiopia has since Rio, adopted a new energy policy and formulated a Forestry Action Plan. Also, some Regions have developed rural energy schemes and a growing number of NGOs are involved in energy related activities.**

#### **Failures**

- **The share of total energy used for consumption purposes is alarmingly much higher than used in production activities. The share of energy for agriculture is particularly low and declining. This raises the serious question whether agriculture surpluses realistically can be expected to be adequate for development investments.**
- **Energy waste is excessively high across all socio-economic sectors.**
- **One of the major factors responsible for the low level of development of the Ethiopian energy sector is lack of adequate trained and experienced human resources in both the public and private arms of the sector.**
- **Infants because they stay close to mothers tending the indoor fireplace are exposed to toxic gas emissions of combustion of fuel wood and kerosene.**
- **Acute soil erosion of farm fields together with soil excavated for construction of infrastructure such as roads, streets, buildings and other structures and dumped at riverbanks is washed into streams and ends up in reservoirs of hydroelectric power plants. The consequence is reduced reservoir holding volume and annual electric energy output capacity of the power plant that entails the scheduled supply interruptions customers experience in recent years late in the dry season.**
- **Energy sector development is perhaps among the lowest of all sectors.**
- **Implementation rate of the conventions and protocols Ethiopia has signed since Rio is disappointing.**
- **Survival rate of the millions of tree seedlings planted since Rio remains low.**
- **As electric tariffs in Ethiopia currently do not in general ensure full recovery of the economic cost of supply, electricity can be said to be subsidized. However recently introduced billing based on monthly average of quarterly consumption does not take into account the capacity to pay of low-income families that form a large proportion of customers. This discourages the use of electricity in households and encourages the use of fuel wood.**

## Challenges/ constraints

- **Kerosene stove imports are paid for with agricultural export earnings. Foreign exchange for import of rapidly growing household use of kerosene fuel and stoves entails clearing more trees for to expand agricultural land to raise export earning.** This creates a vicious circle.
- The energy supply mix at present is **disturbingly over dependent** on biomass, and on petroleum and hydro electricity. Long overdue diversification awaits the activation of the enabling support included in the energy policy. Tapping of substantial geothermal potential in the Rift Valley has only been demonstrated in the 7 MW plant at Aluto Langan. Natural gas supply from the Kalub field, which has been under development now for over a decade, has yet to come on the market. **Even though cost effective in numerous applications, the abundant solar energy endowment has yet to be tapped for low temperature water heating or photovoltaic electric generation to a significant extent.**
- The development of coal-fired electric generation in conjunction with a nitrogenous fertilizer manufacturing plant is also awaited. Solar thermal and solar electric exploitation are limited to a few niche applications. Local makers of solar water heaters are trying to break into the water heater market. Diversification into such new and renewable sources would contribute considerably to wards of sustainable use of energy, the environment and development.
- With 93.6% of total energy supply in 1998/9 used in households, only the remainder 8.6% of the 280kgoe/capita/year (i.e. 24kgoe) was available for use in all production and service purposes. This is shared between production in agriculture, industry, mining, and construction, and the energy used in transportation, commerce and other services. Productive sectors and services in Ethiopia **thus receive a mere one tenth of the 86% share of per capita energy that would be theirs in the 1 kW/capita/year (i.e. 8760kWh or 753 kgoe) scenario shown by Goldemberg etal. to suffice for a mid-1970s West European quality of life if energy end-use technologies having efficiencies cost-effective in 1988 were applied across all socio-economic sectors of a developing country.**
- Road transportation accounts for a major share of petroleum fuel use in Ethiopia. A fast growing number of used vehicles of all sizes are imported **from rich countries for** the private sector. **Though most are** worn out and discarded as inefficient and uneconomical they operate freely in Ethiopia. Poorly maintained, the vehicles are improperly operated on badly maintained roads and streets. Sooty exhaust fumes and bluish smoke commonly emitted by all sizes of cars, trucks and buses, indicate substantial fuel waste due to incomplete fuel combustion and worn engine cylinders wasting lube-oil.
- Energy efficiency measures in any sector have short pay back periods, save foreign exchange, create local jobs, reduce wear and tear in equipment operated at low efficiency, and conserve resources and the environment.
- Rural energy poverty now recognized as probably the most serious energy problem confronting humanity in the near future, is the key physical constraint to be overcome for poverty eradication and sustainable rural development based on substantially raised peasant agricultural productivity and outputs. However, energy planning that includes peasant priority needs for affordable access to non-animate mobile prime mover energy and power and well-matched technology is regrettably rare.

## New initiatives

- In the early 1990s, the **Ministry of Mines and Energy** introduced the "mirt" an improved biomass injera stove in the Addis Ababa market. The GTZ Household Energy/Protection of Natural Resources Project (HEPNR) **under the Ministry of Agriculture is now** promoting this initiative on a larger scale.
- The agricultural package of the Ethiopian government includes afforestation and there is a new initiative in some part of the country to enclose degraded lands so that they recover.
- **Recently, the Ethiopian Economics Association (in 2000), the Ethiopian Electric Agency (in 2001), the Ethiopian Engineering Professional Associations in collaboration with Ethiopian Electric Agency, EEPCO, and the AAU Faculty of Technology (in 2002), and the S&T Professional Associations' Joint Secretariat (in 2002), have organised meetings, seminars symposia and conferences on energy sector themes.**

## The way forward

### Supply side interventions

- **Rapid diversification of energy supplies into as yet untapped rich geothermal, natural gas, solar and wind resource endowments that are cost effective.**
- **Extensive application of cost effective efficiency improvements in all biomass, petroleum and hydro electricity supplies.**
- Enhancing the supply of fuel wood
- Inter-fuel substitution
- Grid extension
- Rural **energisation of which** electrification is a subset.
- Off-grid renewable energy systems

### Demand side interventions

- Improving the energy efficiency of conversion and end-use technologies **across all sectors including** promotion and dissemination of improved fuel-saving cook stoves
- Crucial for **the rapid penetration** of an appropriate technology will be private sector participation in its production, delivery, and operation and maintenance. This should be encouraged through policy measures, such as the deployment of **enabling** legal, fiscal and regulatory framework conditions and incentive mechanisms. Additional government and institutional support is needed in information dissemination, awareness creation, facilitation of developing markets for new and more sustainable energy technologies and services.

# DEFORESTATION AND SUSTAINABLE DEVELOPMENT

## **Key concerns:**

- Ethiopia's forests have been declining both in size (deforestation) and in quality (degradation).
- The annual loss of the high forest area has been estimated by Ethiopian Forestry Action Program (EFAP 1994) to be between 150,000 to 200,000 hectares.
- Based on classification of remote sensing data (satellite images and aerial photographs interpretation) in the seventies (1973-1976) 6.96 million ha or 6.08% of the country was covered by Natural High Forests.
- Around 15 years later, satellite images (1996-1990) proved that less than 4.51 million ha or 4.1% were remaining or around 2.45 million hectares or 2.14% of the country's area had been deforested.
- During this period the annual rate of forest plantation was about 15,000 ha while the annual rate of deforestation was more than 160,000 ha.
- Forest plantation and the natural expansion of forests have not been compensating for the losses incurred. Poor management and encroachment have reduced plantation productivity considerably.
- In terms of the scale of deforestation, the major immediate cause is the often rapid and unchecked expansion of agricultural and livestock farming combined with fires and the demand for firewood.
- Habitat degradation caused by deforestation is contributing to local depletion of forest-based wildlife population.
- The destruction/depletion of vegetation means the loss of genetic resources of both plants and animals and the cover that maintains the soil.

## **Main achievements:**

- EFAP, based on an analysis of the whole range of forest issues, has defined sector objectives, strategies, and identified required policy and institutional reforms. It has also drawn up an investment program to translate the proposed strategies and action programs into reality.

## **Failures:**

- EFAP is not backed by action - the process of preparation of Regional Forestry Action Programs by the respective Bureaux is very slow.
- Lack of local community participation in forest resource management.
- Inadequate individual/local community participation in tree planting activities outside forests.
- Lack of proper watershed management in the highlands, to reduce the increased pressure on land arising from current land uses.
- Inadequate participation of the local community in wildlife management in and around forest areas especially wildlife-based tourism.
- The instability of institutions related to forestry management in Ethiopia. There is a repeated restructuring of the forestry sub-sector by the government.

## **Challenges and constraints:**

- One of the greatest challenges facing the forest sub-sector today is the need to reconcile the conflicting demands of the different stakeholders for the many goods and services provided by forests.
- Absence of land use and forest policy, and weak forest regulatory/legislative measures.
- The biomass fuel and charcoal extraction is creating environmental degradation and worsening poverty pressure in the rural areas.
- Population growth will remain as an important factor affecting forests and forestry in the country. The need for food security may pose the biggest challenge to forestry

between now and the near future. Projected population growth will further aggravate the situation and result in forest destruction to satisfy basic needs.

- Institutional capacity for scientific and technological development is very weak at present.
- Current land and tree tenure systems have significant limitations for tree growing and forest conservation by rural populations.
- Environment issues, like depletion of water resources, desertification and land degradation will remain key problems.
- Without addressing poverty, environmental degradation cannot be prevented/reduced.

**New initiatives:**

- The international policy developments with the framework of UNCED and CSD Panel on Forests have been welcome developments. They have resulted in increased global interest in cross-sectional issues, the stepping up of activities aimed at conserving forests and trees, and the formulation of an action program that is designed to facilitate sustainable forest management.

**The way forward:**

- The need to incorporate traditional/indigenous knowledge in forest resource management in national strategies where appropriate.
- Promotion of participatory approaches, including local community-based forest management and tree planting activities.
- Adopting sustainable forest resource management policy measures, such as land use and forest policy.
- Establishing appropriate institutional arrangement/framework to develop and implement sustainable forest resource management programs at all levels.
- Improving watershed management in the highlands, taking in to account the increasing pressure on land arising from current land uses.
- Promoting rural development in wild life management, especially wildlife-based tourism.
- Forestry's contribution in alleviating poverty may focus on providing goods and services to the poor and improving opportunities for employment and income.
- Promoting public awareness and involvement of rural people in resource management so as to ensure socio-economic growth.
- Enhancing the supply of fuel wood and promoting energy saving technologies and alternative energy sources.
- Educating people on family planning issues.
- Revising and implementing natural resource regulatory/legislative measures related to forest resource management.
- Encouraging greater involvement of the civil society in forestry activities at the local forest level.

## **LAND TENURE AND ENVIRONMENTAL DEGRADATION**

### **KEY CONCERNS:**

- There are huge differences between the different Regions of Ethiopia on this issue;
- The present land tenure system leads to defective agricultural practices and is seen to be an important cause of environmental degradation;
- Clearer definitions are needed for the terms 'land tenure systems', 'poverty', 'conservation', 'environmental degradation' and 'peasants'.
- In many Regions there are practices that discriminate and create inequalities of landholdings based on gender.
- State landownership maybe perceived as a challenge to the peasants' autonomy, needs and interests;
- There is a vicious circle by which poverty causes the extraction of natural resources, which in turn causes more poverty;
- This is not a vacuum situation, for criticism to be of any value it should be accompanied by suggestions of better alternatives;
- In most parts of Ethiopia, the emerging land-use dynamics such as share-cropping and land lease/sale have not been legalized and therefore the conditions under which they are practiced remain destructive to natural resources;
- There are major inequalities of land holdings;
- In most parts of Ethiopia, no conditions are stated on the basis of which both parties involved in sharing a piece of land could negotiate on appropriate resource-use patterns or legalise their agreement;
- Average land holdings will decrease when the landless groups are allotted land;
- The disappearance of communal land tenure systems, after 1975, has led to more environmental degradation than the abolition of private land ownership;
- In the complex relationships between the State and the peasants concern is growing over the increases in individual tax payments, the interest and credit payments associated with the package approach of the Government, the decrease in crop prices and the escalating cost of goods; and
- The retention of the State ownership of land by this Government is based on the belief that poverty would necessitate the selling of land by the peasants and thereby reduce them to the agrarian structure of the pre-revolution period. This denigrates the decision-making capacity of peasants and downplays their autonomy and interests.

### **MAIN ACHIEVEMENTS**

- Many NGO's, Government organizations, private individuals and some commercial investors have initiated the planting of tree seedlings around homesteads, leading to the greening of these areas;
- In pastoralist dominated Regions, pastoralists may feel that they have more power over their lives than in the past;
- Soil enrichment processes have been undertaken in the Amhara Region;
- Where areas and the user rights to those areas have been clearly defined and these rights have been recognized by higher authorities, it has led to appropriate resource management as seen in Dodola Adaba in the Oromia Region;

- The Closure System has been accepted in some Regions, thereby allowing rehabilitation of natural resources;
- The recent Regional recognition of land inheritance rights and the cessation of redistribution of land in certain Regions;
- Small number of peasants have installed soil conservation structures on their farmlands; and
- The existence of share-cropping, leasing out and/or selling of land reveals an increased confidence over private use of land, as compared to the previous regime.

#### **FAILURES AND CAUSES FOR THESE FAILURES**

- In most of Ethiopia, a lack of a legal framework for existing land-use dynamics exist; and
- Although the Constitution does guarantee both individual land users and investors rights to use land it does not mention security of use.

#### **CHALLENGES AND CONSTRAINTS AHEAD**

- How to enable peasants to deploy their time, energy and material resources to increase agricultural production, improve resource conservation and management and contain the agrarian problems;
- How to balance short-term needs and actions of peasants with resource conservation; and
- The need for a clear definition of land-ownership and the duties attached to it.

#### **THE WAY FORWARD**

- The need to learn from the experiences of Tigray, to enable the other Regions to develop their own appropriate systems within the framework of the Constitution;
- The need for land policies that are dynamic;
- It is necessary to define the land owner/usury rights of the pastoralists;
- Gender-disaggregated data throughout the country is necessary to understand fully the situation of women in relation to land tenure; and
- A nation-wide dialogue system including all stakeholders should be undertaken with the view to conducting a national referendum on this most complex and controversial issue.

# **BIODIVERSITY**

## **KEY CONCERNS:**

- Biodiversity is indispensable for the survival of humankind. Thus, proper conservation and sustainable use of biodiversity is crucial for economic development and human welfare.
- Ethiopia is a country with a rich biological diversity and also considered as one of the Vavilovian centers of origin and diversity of crops.
- The biodiversity resources of the country are being seriously threatened by a set of intertwined factors, which are dominantly anthropogenic. The erosion and degradation of genes, species and ecosystems as well as the loss of traditional institutions and systems associated with the biodiversity resource manifest this.
- Forests are being cleared for commercial agriculture, investment and by forest fires.
- Human encroachment into conservation areas leads to resource exploitation;
- The introduction of biotechnology and GMO's and all their related concerns; invasion by alien species of plants; overexploitation and poaching; and resource use rights and the benefits derived from these are the major factors which determine local communities concern, responsibilities and involvement in the protection of those resources.
- The degree of awareness on the opportunities that can be offered by our biodiversity resources is very poor.
- The country's biodiversity potential is not well known due to human resource and logistical constraints, which hampered research endeavors.

## **MAIN ACHIEVEMENTS**

- Conservations Strategy of Ethiopia and environmental policy
- The signing of the Convention for Biological Diversity
- The signing of the bio-safety protocol
- The formulation of the National Biodiversity Research Policy
- The National Biodiversity Strategy and Action Plan Project is underway
- The Environmental Law is under formulation

## **FAILURES AND CAUSES FOR THESE FAILURES**

- Institutional constraints due to frequent restructuring, fragmentation of responsibility, duplication of efforts, lack of sufficient manpower, lack of sufficient budget and human resources;
- In the NGO sector there remains poor coordination among themselves and with Government organizations, abandonment of activities when contracts are expired and donor-driven strategies sometimes overlooking the demands of the community;
- Failure to draw up a proper conservation and sustainable utilization strategy for the biodiversity resources, which would guarantee benefits for Ethiopia. The reason this has not been achieved is that the challenges faced are too intricate and complex and a concerted effort would be necessary involving all stakeholders in this issue.
- Failure to implement a participatory biodiversity management in the country.
- Failure to draw up comprehensive policies (like forest and wildlife policy) is attributed to the perception of policy makers that the issue has less importance

to National priorities and also that it conflicts with the economic objectives of the country; and

- Failure of the Government to understand that when local communities and individuals own resources they never destroy them.

### **CHALLENGES AND CONSTRAINTS AHEAD**

- How to manage the natural world more effectively, to mitigate the impacts of human activities and at the same time improve the development options for disadvantaged peoples;
- How to make uses of the abundant biodiversity in a sustainable way and to share fairly the benefits derived from their uses;
- How to make all stakeholders fully understand the benefits derived from the conservation of the biodiversity resources;
- How to ensure proper access to resources and how to give proper respect to the traditional institutions and systems of management of these resources is one of the major challenges to be faced;
- How to resolve the problem of ethnic conflicts over biological resources, which are becoming more and more rampant especially around protected areas;
- Legislative constraints to the conservation, development and utilization of forest resources are seen to be lack of secured land and/or tree tenure, the lifting of checkpoints for the controlling of illegal movements of forest products, difficulty in prosecuting the alleged offenders and imposing sufficient penalties, lack of regulations and directives and lack of coordination among activities of sectoral institutions; and
- The main constraints associated with the ownership and use rights by local communities of resources are seen to be the oversight by conservationists that local communities are the primary stewards of biodiversity resources and have the practical knowledge of resource management. Denial of access to bio-resources, previously held, can lead to massive destruction of these resources due to the loss of the sense of 'ownership' and responsibility.

### **THE WAY FORWARD**

- Ensure community ownership and use rights of biodiversity resources;
- Make sure that investment activities should pass through environmental impact assessment procedure;
- Establish a mechanism by which efforts can be coordinated;
- Ensure that benefits of conservation are understood by and shared with the local communities;
- Revisit and upgrade pertinent policies and legislation; and
- Promote and strengthen researches to increase awareness and solve problems of Ethiopia's biodiversity resources.