

The Need for Environmental Statistics and Indicators in Ethiopia

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1. Introduction

Ethiopia is located in the northeastern part of Africa between 3 and 15 degrees north latitude and 33 and 48 degrees east longitude. The total area of the country is about 1.13 million Sq. Kilometers and is bordered by Djibouti, Eritrea, Somalia, Kenya and the Sudan. The total population is about 77 million as of 2007 and the annual growth rate is about 2.7% (CSA, 1998). The altitude ranges from the highest peak of about 4,620 meters above sea level at Ras Dashen in the north, and down to 110 meters below sea level at the Danakil depression in the North East. About 45% of the country is highlands with an altitude of 1,500 meters above mean sea level and 55 % is lowlands with an altitude below 1,500 meters mean sea level. It has diverse topographic and climatic conditions. The country is endowed with rich natural resources, such as forest trees, surface and ground water resources, wild animals and birds.

The present government system is federal and the country is administratively structured into nine regional states, namely: Tigray, Afar, Amhara, Oromia, Somali, Benshangul-Gumuz, Southern Nations Nationalities and Peoples, Gambela, and Harari regional states and two city administrations, Addis Ababa the capital and Dire Dawa Administration council.

Natural resources, mainly land, water and forests are the bases for the economic activity of the vast majority of the Ethiopian people. Since time immemorial, people have been utilizing the diverse natural resources without giving attention to the conservation of the resources. This has resulted in to loss of soil fertility, which led to low productivity and low-income generation. Consequently, Ethiopia has become one of the developing countries facing serious economic and environmental challenges, in which the majority of the population is suffering from food shortage.

Poverty is one of the major challenges that Ethiopia is facing currently. A crucial mechanism, which has perpetuated poverty in Ethiopia, is the interaction of poverty and population pressures with the unproductive resource base. Unprecedented population pressures has resulted in decreasing plot size (average landholdings declined from 0.5 hectares per person in the 1960s to 0.11 in 1999), making an increasing number of households dependent on inadequately small and

unproductive plots, and more vulnerable to the vagaries of unpredictable rainfall, and rendering some traditional farming practices unsustainable.

To overcoming the problem and understanding that a healthy, productive and economically viable environmental resource base are prerequisites for improving social well-being and facilitating sustained economic development, the Government has put environmentally sound economic development as its forefront agenda.

Since the Rio Summit the Government of Ethiopia has committed itself to bring about sustainable development by integrating environmental concerns in to all its national policies and programs. The country has also committed itself to fulfill the requirements put under the Millennium Development Goals (MDGs) and to all Multilateral Environmental Agreements, in which it has been a party.

Accordingly, Ethiopia has developed and is in the process of implementing a number of national environmental action plans and programs. Monitoring the level of implementation of these plans and programs is critical for understanding the trend of movement towards the desired goals and objectives outlined in the program of actions. This in turn requires environmental statistics and indicators.

This paper tries to discuss the need for statistical information on environmental issues in Ethiopia, highlights the major data producers and some of the environmental indicators that are available in the country as well as the cooperation between institutions.

2. The Need for Environment Statistics in Ethiopia

To sustain socio-economic development, improve social equity by integrating environmental concerns in all development programmes, local community members, policy level experts, planners, decision makers and the public at large, need to have a good understanding of the conditions of the environment and good knowledge about what is happening to the environment, why it is happening, what improvement measures are planned or taking place at local, national, regional and global levels etc. This knowledge could be acquired through reliable, consistent, timely, and robust environmental indicators.

The role of Environmental statistics and indicators in sustainable development endeavors is immense. Thus it is highly needed for the country to be used as input in:

- understanding the level of our progress towards sustainable development;
- the process of Natural Resources and environmental accounting;
- understanding the status of the environment at a given point in time; and
- Retrospective and/or prospective analysis to track events and changes on the environment etc.

Currently, it is believed that the National state of Environment reports or an Environmental Outlook Reports would serve as one of the information tools that support the management of the environment in Ethiopia. Apparently, the process of producing national state of environment reports has to make use of most relevant environment statistics and indicators. Further more, Natural Resources Accounting process at national level, although it has not been exercised widely until now in Ethiopia, have to make use of environmental statistics.

3. Major Data Generators

The Central Statistical Agency (CSA) in Ethiopia has a mandate to produce complete, timely, reliable, consistent, standardized, and disaggregated statistical information on all social and economical aspects of the country. It also shall lead the country's statistical system and to provide training in statistical methodologies.

Though CSA is a lead statistical institution in the country, it was ineffective to collect and disseminate periodically and systematically environmental statistics indicators so far. Currently, however, in the new organizational structure of the CSA, there is one section within the Department of Natural Resources and Agriculture Statistics that is accountable to compile environmental statistics (see Annex I).

The other data source officially mandated for the collection and dissemination of Geo-spatial data is the Ethiopian Mapping Agency. The Agency mainly conducts aerial photographing, surveying, mapping and remote sensing activities.

Other institutions like for instance , Ministry of Agriculture and Rural Development (MAoRD), National Meteorological Services Agency (NMSA), Ministry of Health (MoH), Ministry of Water resources (MoWR), Ministry of Mines and Energy (MoME), Environmental Protection Authority (EPA), and Disaster Prevention and Preparedness Agency (DPPA) also produce data to meet their internal data needs and/or for external uses.

Apart from the above-mentioned bodies, different project offices, Multilateral and Bilateral Agencies, international and national NGOs with varying objective also have been and still generating environmental statistics in the country.

4. Available Environmental and Related Indicators

Major environmental datasets/indicators used to date are of varying types. The country has not yet clearly developed its own environmental indicators to be used for the SoER/Environment Outlook Reporting or Natural resources and environmental accounting. However, conventionally the country is using bio-physical and human related statistical datasets for different purposes. Some of the environmental statistics and indicators used in Ethiopia are presented in the table below. These

indicators are compiled from censuses, socio-economic surveys and administrative records.

Table 1 Some of the indicators with its measurement units and periodicity of collection

Indicator	Measurement Unit	Periodicity of Collection
Total population	%	Census every 10 year
Average annual growth rate	%	"
Total land area	ha	Unknown
Total forest area	ha	"
Total forest cover	%	"
Total arable land	ha	Annually
Area of arable Land	%	Annually
Average holding size/household in rural area	ha	Annually
Average annual deforestation rate	%	Unknown
Area under Temporary crops	ha	Annually
Area under Permanent crops	ha	"
Pesticide applied area	ha	"
Fertilizer applied area	ha	"
Irrigated area (peasant holdings)	ha	"
Total internal renewable water resources	m ³ (annual)	Unknown
Internal renewable water per capita	m ³ / person/ yea	"
Total water withdrawals	m ³ (annual km ³	"
Withdrawals per capita	m ³ / person/ yea	"
Proportion of households with access to safe water	%	Every Five year
Percent of protected area	%	Unknown
Percent of protected area actively managed	%	"
Terrestrial mammals	Number	"
Bird species	Number	"
Reptiles species	Number	"
Species of amphibians	Number	"
Species of fish	Number	"
Higher plant species	Number	"
Carbon-dioxide (CO ₂) emission-1994	Gg	Unknown
Methane (CH ₄) emission -1994	Gg	"
Nitrous oxide (N ₂ O) emission -1994	Gg	"
Proportion of households using solid fuel	%	Every Five year
- Firewood		
- Charcoal		
- Leaves/Dung cakes, etc.		
Proportion of population with access to improved sanitation	%	Every Five year

Quantity of Mineral Production		Annually (Secondary data)
- Gold in	Kg	
- Tantalum	Ton	

5. Cooperation between Institution

Cognizant of the need to improved environmental information management and sharing the information to support environmentally sustainable development plans and programs in the country, the government of Ethiopia has recognized the need to establish an “Environmental Information System”. This need is pointed out in section 4.7 of the Environmental Policy of Ethiopia and it has also been articulated in section 16.3 of the re-establishment proclamation of the Federal EPA. The proclamation has mandated the Federal EPA to coordinate the establishment of Environmental Information Systems (EIS), for the purpose of networking, collaboration and building partnership between and among different environmental data custodians within the country.

Accordingly, EPA has put its effort to lay the foundation for the realization of an EIS through initiating the establishment of Ethiopian Environment Information Network (Ethio-EIN).

The Ethio-EIN is primarily designed to strengthen the data foundation for an Integrated Environmental Assessment and Reporting (IEA&R) in the country. It would provide a framework for cooperation and coordination among the various existing environmental information management initiatives in Ethiopia, building on previous efforts in environmental and natural resources management information system development by the different private and public bodies as well as NGOS, multilateral and bilateral organizations. It also provides a technical framework for data management to support regular generation of National Environmental Outlook (NEO) and the Africa Environment Outlook (AEO). It would also serve as an institutional mechanism for capacity building in integrated environmental assessment.

The networking initiative, which triggered a very good collaboration between different environment data producers and users, started at federal level as well as in Tigray, Amhara and Oromiya Regional states. At federal level, twelve core joined the network initiative. Regional Environmental Protection Agencies took the lead in coordinating the initiative in all the three regions. A five years implementation strategy document for both national and the above mentioned three regional states was produced by the network partners.

Federal Partners:

- Federal Environmental Protection Authority (coordinator);
- Ministry of Agriculture and Rural Development;
- Ministry of Water Resources;

- Ministry of Health;
- Disaster Prevention and Preparedness Commission;
- Population and Housing Census Commission Office;
- Central Statistical Authority;
- Ethiopian Mapping Authority;
- Geological Survey of Ethiopia;
- Institute for Biological Diversity Conservation;
- National Meteorological Service Agency; and
- Christian Relief and Development Association.

Regional State Partners:

- Oromiya Regional State;
- Sothern Nations, Nationalities and Peoples Regional State; and
- Tigray Regional State.

Ethio-EIN partners would provide access to their respective environment data/information resources holdings; collaborate to standardize, harmonize and develop core environmental datasets usable for the production of the national environment outlook report; create enabling environment to regularly generate, integrate, analyze and process environmental data/information and regularly package and disseminate information products usable for environment and sustainable development planning and decision making.

6. Conclusions

Given the fragile environmental situation of Ethiopia and the challenges facing to most environment and sustainable development planners and decision makers, the need to have environmental indicators is very high and urgent. Moreover the need to statistical data and indicator is highly linked to the constitutional rights of Ethiopian citizens to be informed and participate in decision-making regarding to the well being of the environment and equitable utilizations of the goods and services to be generated from their environment. .

However, the data available pertaining to environmental matters in Ethiopia is very much limited. Despite the availability of very few environmental statistics and indicators, most of them are inconsistent and some of the indicators are even obsolete. Furthermore, data gathering, disseminating, and analyzing capability of the country regarding environmental issues is not yet well developed. This can be attributed to so many factors including financial resources limitations.

It is also apparent that environmentally sustainable development equally requires environmental statistics and indicators for planning and decision-making process as that of social-economic development decision-making process. In order to be able to regularly collect and disseminate national level environmental statistics the CSA has to be well strengthened. The first and most crucial issue in this regard is the

issue of having a proper institutional set-up within the Agency. The very lesson we can learn from the existing institutional set-up of CSA, is that the day to day activity of generating and disseminating environmental statistics is recently attached to a department, joined as a partner to the animal and livestock statistics team. This shows that the work is considered as a subsidiary function. But the reality shows that environmental statistics is a huge task to be properly accomplished. As it stands today in the CSA, the number of human resources to carry out such a huge task is very limited. So, is it possible to achieve the desired success in availing national environment statistics and indicators to the needy? We feel that the answer would be “NO”.

In this regard, questioning the existing institutional arrangement within the CSA and getting appropriate institutional solution as well as collaboration between relevant institutions/stakeholders is very fundamental in order to improve the present environmental statistics system in the country.

Effective coordination and sharing of work could possibly lead to the generation of Standardized, reliable, comparable, consistent and timely environmental data. Hence, pushing forward to effectively implement the Ethio-EIN initiative is highly required. Capacity building in the form of training, technical and financial assistance is an essential component to put into practice environmental data generating and disseminating systems and/or to improve the existing environmental statistics in the country.

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Acronyms and Abbreviations

AEO	Africa Environment Outlook
CSA	Central Statistical Agency
DHS	Demographic and Health Survey
DPPA	Disaster Prevention and Preparedness Agency
EIS	Environmental Information Systems
EPA	Environmental Protection Authority
Ethio-EIN	Ethiopian Environment Information Network
Gg	Giga gram
ha	Hectare
IEA&R	Integrated Environmental Assessment and Reporting
MDGs	Millennium Development Goals
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
MoH	Ministry of Health
MoME	Ministry of Mines and Energy
MoWR	Ministry of Water Resources
NEO	National Environmental Outlook
NMSA	National Meteorological Services Agency
SoER	State of Environment Reports
UNEP	United Nations Environmental Program
WMS	Welfare Monitoring Survey

The New Structure of the Central Statistical Agency

