

## Country Background

The kingdom of Swaziland is located in Southern Africa and is land locked (almost completely surrounded by South Africa) with the Republic of South Africa and Mozambique forming the borders. These countries occupy strategic positions in communication, commerce and links Swaziland to other parts of the world. Swaziland, a former British colony, attained independence in 1968.

Swaziland has a land area of 17,364 square kilometers, of which 11% is arable. The population is 1,173,900, with a growth rate of 2.5%. There are two major divisions in the land use type and ownership:

- The Swazi Nation Land, which is communal, is held in trust by the King, and parts of it are allocated by Chiefs to individual Swazi families for their use.
- The Individual Tenure Farms that are owned on freehold or concession. This sector includes commercial forests, estates and ranches.

There are two distinct seasons in Swaziland, summer and winter seasons. The summer season is characterized by hot and wet weather conditions which start from October to March. The winter season is characterized by cool to cold dry weather conditions and starts from April to September. Average rainfall is 1,000 - 2,280 millimeters or 40 - 90 inches. The average annual temperature is 15.6°C in the Western part and 22.2°C in the Eastern part.

Swaziland has four administrative regions/ districts, which are further divided into 55 Tinkhundla Centers (local Administration) - these form the basic units of political administration.

The economy of Swaziland is largely dependent on agriculture. The agriculture sector employs 70% of the population. Although the performance of large farms and plantations on Individual Tenure Farms remains crucial to the export growth and overall economic development, increasing rural employment and income depends predominantly on the performance of agriculture on Swazi Nation Land.

Swaziland is heavily dependent on South Africa from which it receives about nine-tenths of its imports and to which it sends nearly three-quarters of its exports. The manufacturing sector has diversified since the mid- 1980s. Swaziland has GDP - purchasing power parity of \$6.018 billion (2004 est.) with GDP real growth rate of 2.5% (2004 est.) of which agriculture contributes about 16.1%, industry 43.4% and services 40.5%. Swaziland has inflation rate (consumer prices) of 5.4% (2004 est.) and unemployment rate as 34% (2004 est.).

## **Situation of Environmental Statistics in Swaziland**

The central statistical office currently does not have an environmental statistics unit. However, some ground work to facilitate the establishment of this unit has already been done. The first step towards the establishment of the environmental statistical unit was the preparation of a needs assessment report for environmental statistics. The needs assessment was carried out by a consultant and the project was funded by the World Bank. The report carries detailed plans of how the environmental statistics unit will operate in cooperation with other important stake holders. A short term plan for the first stage of the program includes the formation of some important committees that will guide the operations of the environmental statistics unit. A long term plan involves the training of officers from both the Central statistical office (CSO) and Swaziland Environmental Authority (SEA). The plans include some types of indicators that may be reviewed and be considered for environmental statistics. The report further suggests a review of the statistical legal framework and the environmental management Act in order to incorporate the collation and dissemination of environmental information.

### **How the needs assessment was carried out**

The Central Statistical Office (CSO) has taken various initiatives in close cooperation with the World Bank under the General Data Dissemination System (GDDS) for Anglophone Africa and Swaziland Environment Authority (SEA) for the development of environmental statistics in Swaziland. The CSO then took up the World Bank sponsored project on the provision of Technical Assistance in Environmental Statistics under the GDDS project. Under this project, Agriculture Statistics Section of the CSO requested for technical assistance to perform needs assessment in setting up an Environmental Statistics Unit. Ernst & Young Ghana, which had earlier on expressed interest in the provision of technical assistance in environmental statistics for the Government of Swaziland, was awarded the contract. The project was sponsored by the World Bank and has the following as part of its terms of reference:

- To perform needs assessment;
- Advise how to collect environmental statistics and supplementary information on metadata relating to environment; and
- Train CSO & Environmental Authority staff on environmental statistics

The approach by Ernst & Young to the assignment was mainly by review of documentation /reports, site visits to selected government ministries, departments, research institutions and Non-Governmental Organizations (NGOs) for information on the environment. An initial presentation was made by the Consultant to the Central Statistical Office (CSO) and the Swaziland Authority (SEA) to clarify and agree on the

terms of reference for the assignment, the work plan and a brief on overview on environmental statistics.

Documents and reports were initially reviewed to acquire some background knowledge on the state of the environment in Swaziland. Documents and reports that were reviewed include:

- ◆ Swaziland Environment Action Plan Volume I & II
- ◆ Threatened Vertebrates of Swaziland
- ◆ Environmental Education Strategy for Swaziland
- ◆ Strategic Plan Document (2004/5 - 2008/09) for Central Statistical Office (CSO)
- ◆ Swaziland National Biodiversity Strategy and Action Plan
- ◆ National Solid Waste Management Strategy for Swaziland
- ◆ The Environmental Management Act
- ◆ Acts establishing some selected institutions with mandate on environmental management

To enable Ernst & Young identify institutions with environmental management functions or have information and/or data relating to the environment, the environment was categorized into components namely air/climate; water; and land/soil including the biota within the various categories.

***Identified Sectoral Agencies, Institutions, NGOs with Environmental Management functions***

Agencies that will play a key role in developing environmental statistics by providing the needed data to the Central Statistical Office are listed below and the CSO will rely heavily on these institutions / agencies to supply the bulk of the primary data, and the agencies are as follows:

- Swaziland Environment Authority (SEA)
- Ministry of Agriculture and Co-operatives
- Ministry of Enterprise and Employment
- Surveyor General's Department
- Rural Water Supply Branch
- Swaziland Water Services
- Ministry of Health
- Swaziland National Trust Commission (SNTC)
- Meteorological Services Department
- Lutheran Services (Private enterprise)

- Yonge Nawe (NGO)
- Ministry of Natural Resources
- Swaziland City Council
- University of Swaziland

### **Working programs and Plans for Environmental Statistics**

The implementation of Environmental Statistics program in Swaziland was scheduled over a short and long term. The short-term work program included:

- Setting up of Environmental Steering Committee (ESC)
- Constituting an Inter-Agency Working Group (IAWC)
- Holding initial seminars and workshops with the inter-agency working group
- Data collection program
- Reviewing progress of operational activities

The long-term work program identified the following major activities:

- Identifying office space
- Setting up office(s) / procurement office equipment
- Recruiting new personnel or transfer of staff from other units
- Orientation of staff
- Commissioning of the unit
- Inter-agency working group meetings
- Data collection

In addition to the above, a three-half-day training workshop was organized for the staff of Central Statistics Office (CSO) and Swaziland Environment Authority (SEA) on environmental statistics, metadata relating to environmental statistics, application of geographic information systems (GIS) and remote sensing to environmental management and environmental impact assessment as a management tool in support of environmental management.

### ***Inter-Agency Working Group (Committee of Experts)***

The report proposed the formation of an inter-agency working group (IAWG) to facilitate data collection for the CSO. The proposed IAWG will represent experts covering the various components of the environment and will comprise representatives of the

identified sectoral agencies and should be coordinated by the CSO. In furtherance to the above, an initial workshop on the need for developing ES for Swaziland should be organized by the CSO for the proposed inter-agency working group. An Environmental Expert with knowledge in environmental statistics and with good facilitating skills would be necessary for such a workshop. The workshop should not be limited to the identified institutions but to other stakeholders.

### ***Environmental Steering Committee (ESC)***

One of the most important steps in establishing environmental statistics apart from the inter-agency working group is the creation of a steering committee to oversee all phases of the work. The report suggested that the committee, whose membership should be limited, will be chaired by the CSO, with representation from Swaziland Environment Authority (SEA) and some high-ranking officials representing the users of environmental statistics. This body should be established before the program of environmental statistics is launched. Its main purpose will be to among others:

1. promote cooperation;
2. prevent interagency disputes; and
3. encourage the smooth flow of information.

The complexities of the current available data for environmental statistics pose immediate challenges for the Central Statistical Office (CSO) in this new field. An urgent task is to introduce some order by organizing data according to some simple principle. One of the first decisions that must be made, according to the report, is to develop a framework for organizing the statistical information, level of aggregation, environmental issues, and so on.

In the absence of that, The CSO recommend the United Nations (UN) framework for the development of environmental statistics for adoption by the CSO as a starting point in embarking on its program of environmental statistics. The UN framework, known as the UN-FDES is sufficiently flexible to permit statisticians to monitor all unique features of their country, while providing a basis for international comparison.

To be able to achieve this objective, there is therefore the need to develop statistical information on all aspects of the environment to give an indication of the environmental problems confronting Swaziland. The Central Statistical Office (CSO) of Swaziland which has the mandate to collect statistical information has decided to collate data on the various components of the environment. This is also in support of the General Data Dissemination System (GDDS) Project currently being undertaken by the CSO. The environmental statistics information will be made available to government and its

agencies and other institutions in support of environmental management program and for socio-economic development.

Our Consultant then met with the Agriculture Statistics Unit of the CSO and the Swaziland Environment Authority to identify government ministries and departments, research institutions, NGOs and private enterprises that function according to the various categories of the environment. This was followed by visits to the identified institutions to collect and review their data. This enabled our Consultant to identify and assess the available data which can be used for environmental statistics and also establish their sources.

In addition to the above, a three-half-day training workshop was organized for the staff of Central Statistics Office (CSO) and Swaziland Environment Authority (SEA) on environmental statistics, metadata relating to environmental statistics, application of geographic information systems (GIS) and remote sensing to environmental management and environmental impact assessment as a management tool in support of environmental management.

The assessment showed that there are a lot of environment-related data in Swaziland which are not readily available as they are scattered in the various Government Ministries/Department/Agencies, Environmental NGOs, Research Institutions, the Universities, Environmental Consultants and some Private Enterprises. Most of the data are in the form of technical reports/publications or in other documents that are not readily accessible as a comprehensive database for the purpose of environmental statistics.

### **Environmental components and indicators**

According to the plan from the needs assessment report, the central statistics, in consultations with the inter-agency working group should discuss some of the environmental components and indicators for environmental statistics. Some of these environmental components and indicators to be discussed are shown in **table 2**.

**Table 2 Environmental components and indicators**

Environmental Component	Sub-component	Indicator
Atmosphere	Climate Change	Emissions of Greenhouse Gases
Atmosphere	Ozone Layer Depletion	Consumption of Ozone Depleting Substances

Environmental Component	Sub-component	Indicator
	Air Quality	Ambient Concentration of Air Pollutants in Urban Areas
Land Land	Agriculture Agriculture	Arable and Permanent Crop Land Area
		Use of Fertilizers
		Use of Agricultural Pesticides
	Forests	Forest Area as a Percent of Land Area
		Wood Harvesting Intensity
	Desertification	Land Affected by Desertification
	Urbanization	Area of Urban Formal and Informal Settlements
Fresh Water	Water Quantity	Annual Withdrawal of Ground and Surface Water as a Percent of Total Available Water
	Water Quality	Biochemical Oxygen Demand (BOD) in Water Bodies
		Concentration of Faecal Coliform in Freshwater
Biodiversity Biodiversity	Ecosystem	Area of Selected Key Ecosystems
		Protected Area as a % of Total Area
	Species	Abundance of Selected Key Species

The report suggested that some seminars and workshops be held to by the Central Statistical Office (CSO) in consultations with the inter-agency working group to discuss and agree on key environmental indicators peculiar to the environmental problems facing Swaziland. These workshops and seminars should discuss in detail and agree on environmental indicators resulting from environmental problems facing a country. The environmental indicators will:

1. contribute to measuring environmental performance with respect to environmental quality, environmental goals and international agreement;

2. integrate environmental concerns into economic and sectoral policies;
3. Monitor progress towards environmentally sustainable development, including decoupling of environmental pressure from economic growth.

Currently the environmental components and indicators that the CSO has are shown in table1 below.

**Table 1**

Environmental component	Sub-component	Indicator	Unit of measurement	Method of collection	Periodicity	Source
Land	Agriculture	Arable and permanent crop land area	hectares	surveys	Annually	CSO
Land	Forests	<i>Forest area as % of land area</i>	hectares	census	Annually	CSO

However, it must be noted that these environmental components and indicators are not yet used for environmental purposes.

#### **Limitations of these Environmental Indicators**

- Limited accuracy in the method used in measuring the area covered by forests.
- Poor response rate from respondents.
- Shortage of staff.



## ***Conclusion***

The inter-agency working group and the steering committee for guiding the operations of the have already been established and they are operational. It is hoped that the environmental statistics office itself will be operational once logistics for acquiring posts for the proposed unit have been secured. However, for now the environmental components and indicators mentioned in **table 1** can temporarily provide some information for environmental statistics.