ENVIRONMENTAL STATISTICS

1. Introduction

Environmental Statistics are some of the most important data required for the various aspects of socio-economic planning and environmental monitoring at the local and national levels. Almost all socio-economic activities of man affect the environment, hence environmental statistics cut across many sectors and sub-sectors.

For example, climatic data are required for the general planning of farming activities including timing of cropping and harvesting, timing of farm chemical applications for effectiveness, type of crops planted and irrigation scheduling, among others. The volume and quality of timber extracted from a particular forest over a given period provide reliable insights into the local rates of deforestation and desirable remedial steps to sustain the resourcefulness of the forests, while information on the establishment and success of afforestation and reforestation projects provides a basis for measuring some aspects of physical environmental restoration and the sustainability of forestry activities in the country.

Environmental data are also useful as a measure of standard of living. For example, the availability of toilet and waste disposal facilities reflects the well-being or otherwise of the people in a particular area and suggests issues that may be of specific interest to the planner. Industrial activities, household chores and most informal sector operations also produce environmental statistics.

Environmental datasets are, therefore, wide in scope and several agencies are involved either directly or otherwise, in the production and/or collection of various elements of these datasets as can be found in other sectoral statistics stored by the National Bureau of Statistics. Agricultural dataset covers data on forestry and forest resources, crop production, livestock and wildlife. Meteorology statistics cover data on weather and climate and the Water Resources dataset compiles data on hydrological activities. The Federal Ministry of Works is responsible for the control of erosion, floods, ocean surges and other natural disasters, hence, its Engineering Services Department collects or is supposed to collect administrative data on the incidences of and areas affected by and lives and properties lost to these natural disasters. The Department of Forestry in the States produce administrative data on deforestation from details of the felling of logs for timber. These forestry departments and the National Parks

Board are also responsible for producing sample survey-based data on endangered species of plants and animals.

In spite of the large volume of environmental-related statistics from these various sources, there are many other areas such as air pollution, effluent discharges from industries, water quality and waste disposal which are not currently taken care of significantly by any particular agency. It is with respect to these that environmental statistics are conceived in this document.

The body that should be responsible for this is the Federal Environmental Protection Agency (FEPA). FEPA has its Headquarters in Abuja and maintains seven (7) Zonal offices located in the different parts of the country. In addition, each State also has an Environmental Protection Commission (SEPCO), which are responsible to the State Governments, but also liaise with FEPA on various issues of the environment such as the establishment of the legal provisions for the performance of their functions.

The Federal Environmental Protection Agency (FEPA) emerged from the former Ministry of Works and Transport in 1988. The responsibility for the monitoring and management of several aspects of the environment was formerly with this Ministry. The Stockholm Conferences on environment in 1972, ignited the desire in Nigeria for serious environmental management. In 1975, a Division of Urban Development and Environment was created in the Federal Ministry of Economic Development to handle, among other things, pollution and other related industrial matters. The Division was later in the year to form part of the then newly created Federal Ministry of Housing, Urban Development and Environment. However, its status as a component of the administrative Division of the Ministry made it ineffective. To redress this situation, the Division was transformed in 1978 to the industrial Policy Planning Department of the Federal Ministry of Industry. Further re-organisation of Federal Ministries during the Second Republic, that is, 1979-1983, brought it to the Federal Ministry of Works and Housing where it was renamed the Environmental Planning and Protection Division.

In 1981, a bill came before the Federal House of Representatives for the establishment of a Federal Environmental Protection Agency (FEPA). Nothing came forth from the bill. But, the discovery of five ship loads of toxic wastes of Italian origin in 1988 at the small port town of Koko in Southern Nigeria became the catalyst which spurred Government into action and the populace to greater environmental awareness.

Government response was swift and decisive. The Harmful (Toxic) Wastes Criminal Provision Decree No: 42 of 1988 was promulgated and the Federal Environmental Protection Agency was created by

Decree No: 58 of 1988 as a parastatal of the Federal Ministry of Works and Housing.

In January 1992, the Agency's authority was significantly strengthened through Decree 59 which transferred it to the Presidency and expanded its mandate to include the protection of Nigeria's biodiversity and the conservation and sustainable use of natural resources. FEPA is sufficiently empowered to monitor and protect the nation's environment. The National Policy on the Environment has as its major goal, sustainable development. This has put in place a set of guidelines and standards for industrial pollution control, and strict regulation for effluent discharges, domestic waste management and industrial waste disposal, among others.

2. Coverage, Scope, Uses and Users of Environmental Statistics

In the third revision of the International Standard for Industrial Classification (ISIC) of All Economic Activities, Sewage and Refuse Disposal, Sanitation and Similar Activities are coded as Division '90'. The code includes the collection of garbage, trash, rubbish and waste from households or from industrial or commercial units, their transportation and disposal by incineration or by other means and the removal via drains, sewers or by other means of human waste products and their treatment and disposal. This also involves waste reduction and collection, the collection of refuse in little boxes in public places, the removal of building debris, dumping of refuse on land or in water, burial or ploughing-under of refuse and storm sewage, emptying and cleaning of cesspools and septic tanks, servicing of chemical toilets, dilution, screening and filtering, sedimentation, chemical precipitation, activated sludge treatment and other processes for sewage disposal and the maintenance of sewers and drains. Also included are outdoor sweeping and watering of streets, paths, parking lots, etc., and debris-cleaning on highways (including spreading of salt or sand), airport runways, etc.

Altogether, this division covers most activities that should be included in an environmental protection programme, except those relating to flood and erosion control, drought, and desertification management and environmental education programme.

Most of the items of data that are used in describing the status of entities such as air, ground and surface water usually have specific time-space dimensions. These are variables such as ozone concentrations in air and concentrations of pollutants in water all of which have to be specified in time and space. At the NBS, the ISIC

definition guides the structure of data on the environment in the time-series data base.

3. Sources and Methods of Compiling Environmental Statistics

Relevant Environmental Statistics are obtainable on routine and/or administrative basis as well as through sample surveys. However, the scope for sample survey may be slightly higher than that for administrative sources, especially for planning purposes. FEPA will need to coordinate the use of both strategies of data collection.

Data generated on administrative or routine basis will include those resulting from the management of natural disasters and accidents such as floods, landslide, ocean surges, channelisation, hurricane, dam failures and oil spillage. The category of dataset collected in this way also includes those from established observation points such as gauging stations on rivers, effluent treatment ponds in industrial establishments like breweries and textile industries, and landfills. The collection of data in this respect will require the use of properly structured survey instruments containing a comprehensive list of items that would need to be measured or recorded from the observation points.

Survey strategy will be needed to generate data on parameters such as household refuse generation, accessibility to water and public toilet facilities, air pollution in the cities and other similar data items as listed in the data structure in Section 5 of this document. With the use of relevant legal provision, FEPA should have access to industrial establishments whose activities are capable of polluting or physically degrading the environment. Relevant dataset on this should be properly collated and stored electronically into the database of the Agency.

A number of environmentally-conscious industrial establishments have fairly satisfactory laid-down procedures for the collection of data on pollution. For example, some breweries have effluent treatment ponds and monitor the BOD and COD of the effluent before it is allowed to drain into local waters. Such organisations represent other sources of relevant environmental statistics which can be collated periodically. However, this will require that FEPA works to regulate the quality of the data collation format.

FEPA would have to organise data generation along this line, preferably on a State and Regional basis. For example, regular measuring of air pollution will be required for various urban industrial centres in the country. The Agency should also monitor from time to time, the quality of data from wells, boreholes and Water Works in the various part of the country with its network of modern environmental laboratories. FEPA is in a good position to carry out these tasks.

Ideally, FEPA should coordinate the production of both categories of data. It will also be important for FEPA to put in place an efficient framework that will link it up with all departments and ministries involved in environmental statistics in order to keep track of the various data they generate and or store.

4. Current Methods of Data Storage and Dissemination

Environmental statistics are precious and are often usable only in properly presented format. Therefore data so collected by FEPA should be stored electronically to facilitate easy retrieval and analysis of data. It will be important for FEPA to enhance its data storage facilities for this purpose. FEPA should also coordinate the activities of the State Enviromental Protection Agencies to achieve an exhaustive data gathering and storage on Environmental Statistics.

Like data items on many aspects of the nation's socio-economic life, Environmental Statistics are currently available only in bits and pieces and in hard copies of mostly unpublished documents. The data published so far in this area are those reported in the NBS household-based sample surveys on housing conditions in Nigeria. The reports include information on items such as accessibility to potable water, sanitary facilities and waste disposal arrangements. These datasets on which the reports were prepared were collected from sample surveys and analysed electronically.

5. NBS Data Base Coding System for Environmental Statistics

Attempts have been made to follow the coding system used in the lnternational Standard Industrial Classification (ISIC), revision 3 issue of 1988. Thus, the division code or the first two digits of the code assigned environmental statistics is 90. The NBS has eleven items and 243 details in respect of which annual time-series are to be collected.

While efforts have been made to ensure that the division code or the first two digits of the code assigned to each variable conforms as much as possible with the ISIC, the items and details codes which form the last four digits of the codes assigned to each variable are arbitrarily determined. The Division-Item-Detail (DID) coding system is the basis for coding the NBS's datasets.

In coding the details, six digits are used to identify a particular attribute (variable) as follows: The first two digits for the division, the next two for the item under that division and the last two (the 5th and 6th digits) for the detail (variable) under the division and item. Based

on this coding system, the NBS data structure for environmental statistics is as shown below.

6. CONCLUDING REMARKS

Environmental statistics cut across sectors, hence, several ministries and agencies are involved or should be involved in producing these data. FEPA would need to take full responsiblity for coordination of the various data sets. This will mean ensuring that uniform formats are used for data collation and storage.

Most of the items and details contained in the data base on environmental statistics proposed by the NBS are currently not being produced. The NBS proposal suggests the types of data that FEPA should consider for inclusion in its design for data collection and ultimately in its data bases of time-series of environmental data.