



Distr.: LIMITED  
UNSD/ECA/DISD/ENVWKS/97/3  
14 January 1998  
Original: ENGLISH

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UNITED NATIONS  
ECONOMIC AND SOCIAL COUNCIL  
ECONOMIC COMMISSION FOR AFRICA

UNSD/ECA Workshop on Environmental  
Statistics, Indicators and Accounting

17-21 November 1997  
Addis Ababa, Ethiopia

R E P O R T

## **I. ORGANIZATION OF THE WORKSHOP**

1. The Workshop on Environmental Statistics, Indicators and Accounting was jointly organized by the Economic Commission for Africa and the United Nations Statistics Division (UNSD) in Addis Ababa from 17 - 21 November 1997.
2. The Workshop was attended by twenty two participants from eighteen member States, along with the two resource persons from UNSD and representation from within the Development Information Services Division, as well as representation from Food Security and Sustainable Development Division and other Divisions within ECA.

## **II. OPENING SESSION (agenda item 1)**

3. The Officer-in-Charge of DISD delivered a statement on behalf of the Executive Secretary of Economic Commission for Africa. He welcomed the participants from member States and expressed gratitude to UNSD for providing the technical and financial support that made the Workshop possible. He outlined the restructuring done at Divisional level, alluding to the fact that Geographic Information Systems (GIS) had now been placed in proximity with the Environment Statistics Programme in the hope that some synergy would be derived.
4. He mentioned the fact that the strategy of partnering would be used increasingly in order to attract support for the work planned in the environment statistics programme.
5. He reminded the meeting that the United Nations Conference on Environment and Development had anticipated the integration of environment issues into sustainable development and urged the generation of inter-related data on the economic, social and environmental dimensions of growth and development in the region.
6. The need to compile indexes responsive to environmental imperatives in the African region and to continue the quest for an economic welfare measure of environmental outcomes was also pointed out, as was the requirement of acquiring experience in the area of policy use and analysis with regard to the statistical data and accounts which will now be compiled at the national, sub-regional and regional levels.
7. In referring to the responsiveness of statistical agencies to their users, the representative of ECA advised the meeting to consider the wide use of all the Information Technology tools available to them, including advanced dissemination media such as CD ROMs.
8. He also suggested the adoption of a harmonized approach to the use of environmental sustainability indicators and general accounting framework and posited that the most cogent contribution that environment statisticians could make to combating poverty, is the provision of

timely environmental indicators and accounts with which to facilitate planning, monitoring and evaluation of development in Africa.

9. The representative of the Executive Secretary concluded by inviting participants to work for the development of Africa by contributing in the area of environment statistics. He wished the meeting fruitful deliberations.

10. The representative of UNSD delivered a statement on behalf of the Director of UNSD. He welcomed participants to the Workshop and expressed his pleasure to discuss the new concepts and methods of environment statistics with experts in the field in a regional context. He observed that it was the neglect of interdependence among environmental, economic and social concerns that could be blamed for both environmental degradation and stagnant development. There is thus an urgent need to assess these interactions.

11. He noted that there has been a proliferation of indices and indicators of sometimes questionable quality. He concluded that there was a need for statisticians to get more involved in the development of such measures, in order to impart to them some quality control and standardization. Of course, this should be done in close cooperation with data users to reflect policy priorities and data requirements.

12. He expressed the hope that the meeting would throw light on environmental conditions and problems within member States and would also highlight methodologies which are being currently developed. He especially anticipated that the meeting would lay the ground for addressing the question of how environmental indicators could assist in accomplishing environmentally sound and sustainable growth and development.

### **III. ELECTION OF OFFICERS (agenda item 2)**

13. The Workshop decided on sharing both the offices of Chairperson and Rapporteur between UNSD and ECA.

### **IV. ADOPTION OF AGENDA AND WORK SCHEDULE (agenda item 3)**

14. The following agenda was adopted.

1. Opening session
2. Election of officers
3. Adoption of agenda
4. International programmes of environment statistics
  - (a) UNSD
  - (b) ECA

- (c) Others
- 5. Environmental statistics and indicators concepts, methods and use
  - (a) Presentations and discussion
  - (b) Working groups on the selection, compilation and use of indicators
  - (c) Sharing the experience of environment statistics: compendia from selected countries
- 6. Environmental accounting: concepts, methods and use
  - (a) Introduction to integrated environmental and economic accounting
  - (b) Compilation of key modules of the SEEA
  - (c) Presentation of country case studies
- 7. Capacity building and training: development of national and regional programmes of environment statistics
  - (a) Implementation of national programmes
  - (b) Training and technical cooperation
  - (c) Future work
- 8. Closing session

## **V. INTERNATIONAL PROGRAMMES OF ENVIRONMENT STATISTICS (agenda item 4)**

### **A. United Nations Statistics Division (UNSD)**

15. The presenter commenced by providing a historical perspective of the development of environment statistics at the international level, ranging from the Stockholm Conference of 1972, through the Rio Conference of 1992. He observed that, contrary to the field of economic accounting, in the area of environment statistics there is no common underlying theory and numeraire (such as the market price). Rather than developing a "system" of environment statistics a "framework" for the development of such statistics was therefore proposed by the United Nations and endorsed by the United Nations Statistical Commission.

16. He outlined a number of the existing approaches, including the "media", "stress-response", "resource accounting" and "ecological" approaches and explained that the UNSD attempted to distil the more useful elements from all of the approaches in its Framework for the Development of Environment Statistics (FDES). In this manner environmental components were confronted with dynamic elements of the stress-response approach. He further explained that FDES was a description of statistical topics reflecting general environmental concerns but did not contain statistical variables. However, those variables are described in follow-up publications: "Concepts and Methods of Environment Statistics - Statistics of the Natural

Environment and "Concepts and Methods of Environment Statistics - Human Settlement Statistics".

17. On the subject of sustainable development, the presenter emphasized the need for integrating environmental concerns with economic and social development while observing that the concept of sustainable development has defied so far any appropriate definition. He presented a scheme explaining different concepts of economic, environmental and social sustainability and described possibilities of measuring these concepts in a process of supply and use of related goods, services and amenities.

18. The presenter also observed there is a "dichotomy" of developing indicators of sustainable growth and development in physical and monetary terms. Environment and sustainable development indicators are currently being developed under the aegis of the United Nations Statistical Commission and the Commission on Sustainable Development.

### **B. Economic Commission for Africa (ECA)**

19. A presentation was made by ECA on the Environment Statistics Programme of ECA. Firstly, the vision statement of the Division was presented, and its particular relevance to the programme recognized through the fact that the statement acknowledges: the importance of sustainable development; compilation of relevant quality data is important; building national capacities in this domain is vital; that information and communication technology will play an important role.

20. The presenter also enunciated the medium term goals and objectives of the programme, which included ensuring that each country of the Africa region had a viable, responsive environment statistics programme, establishing standardized, harmonized approaches to the development of such programmes, and ensuring that flow of reliable, standardized environmental and environment-related data within the region and across regional boundaries would materialize.

21. In terms of the current situation, it was pointed out that identification and documentation of major environmental concerns in a selection of countries was being carried out, that the construction of a regional multi-sectoral database, with environment data as a component, was in its planning stage and that facilitating the exchange of experiences in the development of environment statistics programmes among African member States was in progress.

22. The question of what strategy should be employed was addressed and it was pointed out that the one employed included the re-engineering within ECA, placing GIS closer to environment activities so as to encourage its integration into those activities, making use of the assistance provided by UNSD as well as the Netherlands government to contribute towards fulfilling the objectives of the programme.

23. Available options for the future were intended to focus to some extent on capacity building, with the exploitation of traditional technical cooperation methods, as well as pursuing

cause-related marketing alliances with corporate entities, who would provide financial assistance in return for association with the worthy cause of environmental monitoring and assessment which environment statistics programmes represented.

24. Questions were asked about whether there had been collaborative activities undertaken with other UN agencies conducting activities in the area of environment, such as UNEP and Intergovernmental authority on Drought and Development (IGADD) and what was the relationship of the environment statistics programme to the Pan African Development Information System (PADIS). Collaboration will actively be sought with UNEP and other UN agencies in the future.

25. Clarification was also sought on what the time frame of the work programme was and how soon member States could look forward to its implementation. It was explained that the programme related to the next biennium, 1998-1999.

### **C. COUNTRY PRESENTATIONS**

#### **Lesotho**

26. The representative of Lesotho outlined the main environmental concerns and strategies of her country. The concerns included: rangeland mismanagement, soil erosion and fertility loss, loss of heritage sites, population expansion and its effects on the quality of human settlements and pollution.

27. The main strategies employed to combat these problems were summarized as the development of a National Environment Action Plan (NEAP) in 1988 and the formulation of coherent environmental legislation subsequently. She observed that although NEAP was approved in 1989, it was not put into effect then. There were nevertheless, a number of achievements which were made. These included:

- (i) the establishment of an Environmental Unit in different Ministries;
- (ii) conduct of work in the priority area of environment education and training;
- (iii) setting up of the National Environment Network of Lesotho;
- (iv) execution of water resource management;
- (v) promotion of sustainable development;
- (vi) establishment of an environmental policy.

28. A State of the Environment report is being prepared. This can function as a benchmark for monitoring Lesotho's environmental situation.

## **Zambia**

29. A database was set up in the Environment Council of Zambia (ECZ). Other activities are also being coordinated by this agency, in particular, the establishment of an environment network. Once the relevant institutions which collect environment data have been identified, this network will be easily established. Within the Central Statistics Office, an Environment Unit was set up in 1995. However, qualified manpower is needed for running the Unit. In terms of technical cooperation, the Swedish International Development Agency (SIDA) organized relevant workshops in Tanzania, Zimbabwe and South Africa.

30. Strengthening the Environment Unit continues to be a high priority within the Central Statistics Office. A variety of statistics are already being collected. A GIS project with a duration of 20 years is being funded by the World Bank. It will be implemented by the ECZ.

31. Deforestation, water resources, mining, soil degradation and wildlife depletion are all key issues which will be developed.

32. In addition to managing the resource base, the development of an information base is also a priority and it is relatively easy to obtain data from the above-mentioned sources.

33. It was also mentioned that Zambia had introduced a pollution fee, an economic instrument designed to deal with the environment problem. Furthermore, many companies had simply been instructed to clean up.

34. It would be very beneficial to the environment statistics programme if ECA would organize workshops of two to three weeks duration on specific environment issues in the near future. This would go a long way to reducing the financial and material resource deficit in contributing to the capacity building in Zambia.

## **Egypt**

35. It is now twenty-five years since the start of environment endeavours in Egypt. An Environmental Affairs Agency with responsibility for wildlife, marine and local pollution issues has been set up. The national statistical office, referred to as CAPMAS, would like to establish an environment unit, but has not been able to operationalize this plan, owing to the financial constraints facing the office.

36. Some environmental data are being obtained from traditional statistical avenues, namely, from surveys and censuses. In past years, environment questions have been added on to, the 1996 general census for population and housing establishments, to the 1995/1996 survey of income, expenditure and consumption as well as to the 1990/1991 general agricultural census.

## **VI. ENVIRONMENTAL STATISTICS AND INDICATORS (agenda item 5)**

**(a) Presentations and discussions**

37. The representative of UNSD described the nature of and different approaches to the organization of environment statistics, namely the media approach, the stress-response approach, the resource accounting approach and the ecological approach. The media approach organizes environmental issues from the perspective of major environmental components of air, water, land/soil and the man-made environment. The stress-response approach focuses on impacts of human intervention within the environment (stress) and the environment's subsequent transformation (environmental response). The resource accounting approach aims at tracing the flow of natural resources from their extraction (harvest) from the environment, through successive stages of processing and final use, to their return to the environment as waste or to the economic sector for recycling. The ecological approach includes a variety of models, monitoring techniques and ecological indices. She introduced the FDES, which is a combination of the media and stress-response approaches. She described the purposes of FDES, namely to review environmental problems and concerns, determine statistical topics, identify statistical variables, assess data requirements, sources and availability, and to structure databases, information systems and statistical publications. She presented the format of FDES which relates the components of the environment, i.e. flora, fauna, atmosphere, water, land/soil and human settlements, to information categories consisting of: social and economic activities, and natural events; environmental impacts of activities/impacts; responses to environmental impacts; and inventories, stocks and background conditions. The information categories reflect a sequence of action, impact and reaction.

38. FDES consists of statistical topics but does not specify statistical parameters, indicators, classifications, tabulations or methods of data collection. UNSD, therefore, prepared two technical reports entitled "Concepts and Methods of Environment Statistics", one on human settlements and the other on the natural environment. These reports, which were presented to the workshop, describe the detailed sets of statistical variables to facilitate the identification and selection of statistical series for national and international data collection. However, it was found that a selection of environmental statistics or indicators needed to be made and UNSD developed a list of about 50 environmental indicators in collaboration with the Inter-governmental Working Group on the Advancement of Environment Statistics (IGWG). The Statistical Commission, at its twenty-eighth session, approved this list for international data compilation by UNSD.

39. With regard to the transition from statistics to indicators, the UNSD representative presented a definition of an environmental indicator, as contained in the "Glossary of Environment Statistics" as well as some of the criteria for indicator selection and development. She also presented the pressure-state-response framework as developed by OECD, the Framework for Indicators of Sustainable Development (FISD) developed by UNSD, and the framework for indicators of sustainable development used for indicator development under the aegis of the Commission on Sustainable Development, in response to Agenda 21. The similarities and differences between the frameworks were described. The workshop was also informed of the draft questionnaire prepared by UNSD of fifteen indicators to be circulated as a pilot test to the participants of the IGWG. The questionnaire would be revised based on the



results of the pilot test and circulated to all national statistical services in 1998. The remaining indicators on the IGWG list would be obtained from international organizations for the specialized areas. UNSD informed the workshop of the planned "Manual on Environmental Statistics and Indicators", expected to be available in 1998, which will contain definitions, classifications, measurement methods etc. for all the indicators on the IGWG list.

40. The workshop was then divided into four working groups.

### **Working Groups on the Selection and use of indicators**

41. The Workshop was split up into four working groups, randomly chosen, for this activity. Each working group consisted of approximately six persons. The task of the Working Groups was to consider the table on "Selection and Use of Indicators" (Annex II), which was provided to the meeting for discussion and to report back to the plenary sessions on what was agreed. The groups were constituted in the following way:

<b><u>Group 1</u></b>	<b><u>Group 2</u></b>	<b><u>Group 3</u></b>	<b><u>Group 4</u></b>
Botswana	Egypt	Ethiopia	Ethiopia
The Gambia	Ghana	Kenya	Lesotho
Malawi	Mauritius	Nigeria	Nigeria
Seychelles	Uganda	S. Africa	Tanzania
Tanzania	Zimbabwe	Uganda	Zambia

42. Following is a synopsis of their reporting:

#### **Key Issue #1**

43. **What are the priority environmental issues and/or the statistical topics in your country (e.g. water quality, land degradation)?**

#### **Key issue #2**

44. **What are some of the statistical variables/indicators that reflect each of these issues?**

45. Key issues 1 and 2 have been condensed into Table 1.

#### **Key issue #3**

46. **Which indicators exist in your countries?**

47. In response to this question, most countries indicated that all the variables existed in some state, with the following provisos:

- (i) air quality indicators existed mostly in large urban areas only
- (ii) very little noise pollution data existed
- (iii) where urban waste was not disposed of legally, comprehensive data were not available.

#### **Key issue #4**

48. **Are the data readily available for the selected indicators?**

49. It was observed that between 30% and 89% of data were readily available in countries.

50. Categories of data cited as being readily available were:

- Land degradation (excluding deforestation)
- Water pollution
- Unplanned settlements
- Human activity
- Urban waste disposal
- Population

51. Categories of data cited as not being readily available were:

- Per capita use of fertilizers
- Deforestation variables
- Waste generation
- Coastal zone degradation
- Noise pollution

#### **Key issue #5(a)**

52. **Who are the main data users for the selected indicators?**

53. The following were listed as the main data users for the selected indicators

- Government agencies
- Individuals, including farmers, investors
- International organizations
- Non governmental organizations
- Research institutions
- Parastatals

#### **Key issue #6**

54. **Does the IGWG list of indicators fully reflect these priority issues?**

55. In response to this question, most country representatives found that the IGWG list of indicators largely represented the priority issues with certain exceptions:

- Desertification
- Coastal zone degradation

**Key issue #7**

56. Are there priority indicators for your country which are not included in the IGWG list? If yes, please include them here.

57. For most groups there was not sufficient time to deliberate on this item.

	<b>Priority environmental issues and/or statistical topics</b>	<b>Associated Statistical Variables/ Indicators</b>
1.	Land degradation, including:	Land use statistics, including fertilizer usage and use of pesticides, etc.
	soil erosion/degradation	Yield/unit area, PH tests, heavy metal tests, nutrient content
	- Soil fertility - Soil loss	Top soil loss in tonnes/year, area affected by soil erosion
	deforestation	Forest loss/unit area, area of forest cover (through satellite images), no. of bush fires, acreage of burnt area, level of increase or decrease of indigenous &/or endemic species, trees/sq.km
	rangeland mismanagement/ carrying capacity	Livestock density/unit area
	desertification <sup>1</sup>	Area affected, rate of desertification
2.	Water pollution/quality	- Ambient concentrations of toxic substances, inc. heavy metals, fecal coliform and biological oxygen demand  - Water quality indices for  - drinking - irrigation - marine life - fresh water life

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1 A question arose as to whether desertification was in fact (i) a form of land degradation, (ii) a consequence of land degradation, (iii) a cause of land degradation and/or some combination of the above. The meeting sought clarification from the presenter of this Agenda Item on this issue.

	<b>Priority environmental issues and/or statistical topics</b>	<b>Associated Statistical Variables/ Indicators</b>
3.	Fish stock depletion	change in fish catch <sup>2</sup> size of corals remaining and damaged corals
4.	Waste management	- volume and type of waste generated in urban areas - volume and type of waste disposal by type of waste treatment
5.	Air pollution	- emissions of CO, SO <sub>2</sub> , NO <sub>2</sub> , VOCs - ambient concentrations of CO, SO <sub>2</sub> , NO <sub>2</sub> , and suspended particles - pollution abatement expenditure
6.	Climate change	temperature (average, range), quantity of rainfall, rainfall patterns, rise in sea level, increase in sea water temperatures, flooding of beaches/coastline, emissions of CO <sub>2</sub>
7.	Human habitat degradation	quantity and type of household and industrial waste, no. of authorized/unauthorized dumping sites, pollution of ground water, area under squatter settlements, poor housing, poor access to amenities

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2 Depletion measurement requires the assessment of sustainable yield usually undertaken in connection with fishery accounts.

	<b>Priority environmental issues and/or statistical topics</b>	<b>Associated Statistical Variables/ Indicators</b>
8.	Threats to protected areas and world heritage sites	no. of tourists/year/site, no. and area of tourist sites
9.	Threats to biodiversity	number of plant and animal species, extinct, threatened diminishing/declining habitats
10.	Unplanned human settlements and high population growth rates	population growth rate, population density, average size of household
11.	Gross coastal zone erosion/degradation	no. and size of drowned beaches, coastline measurement (including by eye)
12.	Environment education and awareness	no. of persons aware of environment issues and problems, stated in a questionnaire
13.	Noise pollution	no. of registered vehicles, noise level in urban areas/zones in decibels

**(b) Working groups on indicator compilation: data availability, collection and dissemination**

58. The workshop was divided into the same four working groups as in the earlier session under the same agenda item. The purpose of the working group was to discuss primarily the environmental indicators in the list approved by the fourth meeting of the Inter-governmental Working Group on the Advancement of Environment Statistics (IGWG). Group 1 focused on the air/climate indicators. Group 2 focused on the land/soil and other natural resources indicators. Group 3 focused on the water indicators. Group 4 focused on the waste, natural disasters and human settlements indicators. The priority indicators for each of the groups to discuss were the fifteen for which UNSD had developed draft questionnaires to be sent out shortly as a pilot test to the non-OECD countries that participated in the IGWG. For each of the indicators addressed, the groups answered a series of questions contained in a work sheet covering issues of definitions, classifications, measurement methods, as outlined in the questionnaire, as well as issues of data availability, data sources, data collection methods, data coverage, periodicity of data collection, data quality and policy relevance (Annex III).

59. Given the fact that this was the first time the groups were introduced to the questionnaires and the limited time to discuss them, the group exercise was seen more as a means to illustrate the process of thinking for statisticians who would be faced with the situation of data collection in their own countries both for national and international reporting. It was not expected to obtain major recommendations out of this group exercise but more to stimulate discussion on both the questionnaires and the indicators themselves.

60. The main conclusions with regard to the questionnaires were that for the most part they were quite comprehensive. In some cases the definitions needed to be clarified or additional definitions needed to be included. Some of the classifications needed to be modified and some of the measurement methods elaborated upon. Two general comments were that firstly, the questionnaires were appropriate at international level but at the national level the data collection would need to be disaggregated. Secondly, the detailed definitions, classifications and measurement methods need not be elaborated upon in the questionnaires if a technical manual containing such information was available.

61. With regard to the issues of data availability, sources etc. for each of the indicators, most of the groups did not have an opportunity to address these questions due to time constraints and lack of contact at this moment with the relevant institutions in the countries. However, these questions would serve as useful guidelines to the statisticians when faced with the task of compiling the data from the appropriate sources in the country.

**(c) Sharing the experience of environment statistics: compendia from selected countries**

62. The representative of UNSD made a short presentation to the workshop about environment statistics compendia, both in terms of the approaches to the organization of and coverage of the environmental statistics and indicators. She presented some examples of

compendia from selected countries. Three countries, Nigeria, Tanzania and Zimbabwe presented their compendia, describing their contents, objectives and uses.

63. The discussion focused on the differences between State of the Environment (SOE) reports and environment statistics compendia and what information should be included in these publications as they appeared to overlap in some cases. UNSD responded in that SOE reports normally describe the state of the environment through environmental monitoring information, contain analysis and are more policy related, and sometimes include statistical tables in an annex. Environment statistics compendia usually contain tables, graphs and charts describing statistical information in a synthetic manner comprising socio-economic, demographic and environment statistics, for example, as presented in the FDES. Although UNSD does not have guidelines on SOE reporting and on environment statistics compendia it agreed to make available to participants such information from other sources.

## **VII. ENVIRONMENTAL ACCOUNTING: CONCEPTS, METHODS AND USE (agenda item 6)**

64. The representative of UNSD described the objectives, structure, concepts and methods of environmental accounting of the United Nations System of integrated Environmental and Economic Accounting (SEEA). Integration of environmental, economic and social policies aiming at sustainable development require integrated data bases. Environmental statistics and indicators, presented in relatively loose frameworks, assist in organizing and disseminating data but cannot achieve the level of integration of a national accounting system. The SEEA achieves this level of integration by using prices and costs and accounting identities to assess environmental impacts in a manner comparable to and consistent with national accounts aggregates.

65. Conventional national accounts do not or not adequately measure scarce environmental services of natural resource inputs into and the absorption of pollutants from the economic system. The SEEA therefore expands the asset boundary of the SNA to incorporate economic and environmental natural assets and their changes (as cost or other changes in volume) in an accounting framework. The following objectives are achieved to this end:

- (a) segregation and measurement of environmental protection expenditures
- (b) linkage of physical statistics and accounts with monetary environmental accounts and balances
- (c) measurement of environmental depletion and degradation cost
- (d) measurement of tangible natural wealth by means of asset accounts
- (e) compilation of environmentally adjusted aggregates, notably of Environmentally-adjusted Value Added (EVA), net Domestic Product (EDP) and Capital Formation (ECF).



66. Three categories of valuation are presented in the SEEA, viz. market valuation of natural resources and resource depletion, maintenance costing of environmental degradation (emissions) and contingent and related valuation of environmental damage (effects on health and ecosystems). Only the first two valuations are recommended for recurrent implementation of the SEEA.

67. The representative of UNSD then illustrated the use of an operational manual of SEEA implementation, currently being prepared by a group of experts ("Nairobi" Group). The manual will be issued by the end of 1998; a draft will be widely distributed in spring 1998. The manual will present step-by-step instructions on how to implement the more practical components ("versions") of the SEEA. It makes use of worksheets and a data base for filling the worksheets with illustrative data in physical and monetary terms.

68. The representative of UNSD also referred to the links between environment statistics, physical natural resource accounts and monetary environmental accounts. Links and overlap can be found in particular in the areas of natural resource stocks and use, the emission of pollutants and environmental protection. Monetary environmental accounts reach their limits in using market valuation and maintenance costing only. Thus they assess credibly direct interactions only between environment and economy. Further welfare effect on human health and social (ethical and aesthetic) values need to be measured by alternative - physical - indicators. The main policy application of the results of environmental accounting can be summarized as:

(a) at the macroeconomic level: the definition and measurement of sustainable economic growth in terms of EDP, and the use of environmentally modified economic variables based on "green" accounting indicators in policy analysis (modelling), policy formulation and evaluation

(b) at the microeconomic level: the use of environmental costs in setting economic instruments at a realistic level; the objective is to change environmental behaviour of households and enterprises through internalization of their environmental costs into their budgets and plans.

## **VIII. CAPACITY BUILDING AND TRAINING: DEVELOPMENT OF NATIONAL AND REGIONAL PROGRAMMES OF ENVIRONMENT STATISTICS (agenda item 7)**

### **(a) Implementation of national programmes**

69. The representative of UNSD briefly described typical approaches to developing and implementing pilot projects of environmental accounting. Such projects or programmes have been conducted by national statistical services, the environmental department or protection agency, and research institutes. In launching such a programme an international seminar may bring together a wide array of experts from the NSO, ministries and the research community. A typical setup has been the creation of a Steering Committee, Task Forces and Training Workshops.

70. A long-term programme of SEEA implementation might include the initial pilot study, benchmark compilations (e.g. every five years) and "reduced-format" annual compilations. Given the inter-disciplinary nature of environmental statistics and accounting and the need to interpret, or at least link, socio-economic statistics with environmental data, the NSO was considered to be particularly well suited for coordinating diverse data collection activities.

**(b) Training and technical cooperation**

71. The importance of training, technical cooperation and capacity building was stressed by the participants in this new and complex field of environment statistics. ECA noted that given limited resources one had to be more innovative in the approaches towards technical cooperation, e.g. through partnering, bilateral and multilateral means.

72. The representative from the Eastern Africa Statistical Training Centre (EASTC) provided an overview of its training activities. EASTC was established by the United Nations to cater to the training of the personnel working with the Central Statistical Offices in English speaking countries of Eastern and Southern Africa. The EASTC was established in 1963 and was under UNDP in Tanzania.

73. The EASTC is intending to develop a trial training course on environment statistics for the trainees from these countries during the 1997-1998 academic year. It will include concepts and methods of environmental statistics, indicators and accounting and data collection. The major concern at present is the development of the training materials for the course. In order to prepare these materials, technical assistance, information exchange and relevant statistical publications are required from the UNSD and other appropriate institutions.

74. The representative from the Institute of Statistics and Applied Economics (ISAE), Makerere University presented the training activities of the ISAE in the field of environment statistics. ISAE provides training courses to over nineteen English speaking African countries. ISAE has designed a course which includes, inter alia, a description of the concepts and methods of environment statistics and sustainable development using FDES as the underlying framework. Topics such as: the role of geographical information systems (GIS), information systems on the various components of the environment, environmental modelling, the development of environmental indicators and indicators of sustainable development, and natural resource accounting have now been included. The importance of equipping statisticians with the knowledge of natural sciences through training workshops, courses and seminars was also stressed. This course was started in 1992 but due to lack of adequate literature on the subject only the FDES and related methodologies were in use until early 1997 when additional materials were availed to the institute, facilitated through the Munich course on Statistics for Environmental Policy. The programme has now been expanded to incorporate among others the above-mentioned topics.

75. Two other training activities in the field of environment statistics were described in this context. The Munich Centre for Economic, Social and Environment Statistics organized for the first time, a three and a half month course on Statistics for Environmental Policy for about 20

English-speaking African, Caribbean and Pacific (ACP) countries in 1997. The course was very comprehensive in nature covering all aspects of environmental statistics, indicators and accounting including specialized topics on air, water, land and waste statistics. The same course was thereafter repeated for French-speaking ACP countries.

76. Statistics Sweden has offered two week courses in environment statistics in Tanzania, Zimbabwe and South Africa during the past two years for English speaking countries in the African region.

## **IX. CLOSING SESSION (agenda item 8)**

### **Conclusions and Recommendations**

#### **Conclusions**

- (i) Sustainable development calls for an integrated approach to economic, environmental and social policies. Such policy integration requires comprehensive databases organized in and compiled through appropriate statistical frameworks and systems.
- (ii) The availability of a wide range of timely and reliable environment statistics and accounts continues to be of utmost importance to all countries of the region. Only through such statistics and accounts can sustained monitoring and evaluation of the state of the environment and sustainable development be accomplished.
- (iii) While it is apparent that a plethora of approaches for dealing with environment statistics exists, at this time, the Framework for the Development of Environment Statistics (FDES) presents a particularly important and useful approach, encompassing as it does, components of a number of approaches.
- (iv) The selection of environmental indicators relevant to the environment phenomena of each country is a crucial activity in any environment statistics programme. The selection of such indicators should be the result of close collaboration between data users and producers.
- (v) The System of integrated Environmental and Economic Accounting (SEEA) permits the assessment of the interactions between the environment and economy of a country in an integrative manner. It is a useful tool for the measurement of economic performance and growth, taking environmental costs into consideration and determining the level of economic instruments for the internalization of environmental costs.

#### **Recommendations**

- the availability and quality of environmental statistics produced in member States be improved, making appropriate use of available international statistical concepts and definitions;
- member States present available environmental statistics in statistical compendia based on international statistical standards, where appropriate, to enhance international comparability;
- training courses in environmental statistics and accounting be developed by the relevant organizations and training institutes in the region, and adequately supported by member countries and international organizations;
- ECA and UNSD should continue to facilitate collaboration and information exchange among member States through appropriate information technologies, workshops, seminars etc. on environmental statistics, indicators and accounting;
- the ECA should assist member countries to access financial and technical support for environmental statistics and accounting projects and programmes.
- member States participate in the international compilation of environmental indicators carried out by UNSD and contribute to ECA's African Compendium of Environment Statistics.



Distr.: LIMITED

UNSD/ECA/DISD/ENVWKS/97/3  
15 June 2000

Original: ENGLISH

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Statistics, Indicators and Accounting**

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Addis Ababa, Ethiopia**

## **Annex I**

### **LIST OF PARTICIPANTS**

## **LIST OF PARTICIPANTS**

### **BOTSWANA**

Mrs. Botsalano G. Coyne, Principal Natural Resources Officer (PNRO), Environmental Research and Monitoring Division, National Conservation Strategy (Coordinating) Agency (NCSA), Ministry of Local Government Lands and Housing, Gaborone, Botswana

### **EGYPT**

Mr. Omar Mohamed Barakat, Director of Statistics Affairs, Central Agency for Public Mobilization and Statistics, Cairo, Egypt

### **ETHIOPIA**

Dr. Abdulahi Hasen, General Manager, Central Statistical Authority, Addis Ababa, Ethiopia

Mr. Habekirstos Beyene, Senior Statistician, Central Statistical Authority, Addis Ababa, Ethiopia

Mr. Sitotaw Berhanu, Head, Planning and Programming Service, Environmental Protection Authority, Addis Ababa, Ethiopia

### **GAMBIA**

Mr. Edrissa Ceesay, Statistician, Central Statistics, Banjul, The Gambia

### **GHANA**

Mr. Kwadwo Addomah-Gyabaah, Deputy Government Statistician, Ghana Statistical Service, Accra, Ghana

**KENYA**

Mr. Mark O. Odege, Central Bureau of Statistics, Office of the Vice-President and, Ministry of Planning and National Development, Nairobi, Kenya

**LESOTHO**

Ms. M.E. Mokone, Bureau of Statistics, Maseru Lesotho

**MALAWI**

Mrs. M. Kanyuka, Assistant Commissioner for Census and Statistics, National Statistical Office, Zomba, Malawi

**MAURITIUS**

Mr. Harish Bundhoo, Deputy Director, Central Statistical Office, Port-Louis, Mauritius

**NIGERIA**

Mr. S. Job, Chief Statistician, National Accounts Division, Federal Office of Statistics, Lagos, Nigeria

**NIGERIA**

Dr. Jacob Oluwole Ameyan, Director, Planning, Statistics and Information Management, Federal Environmental Protection Agency, GARKI ABUJA, Nigeria

**SEYCHELLES**

Mr. Hendrick Paul Gappy, Director-General, Ministry of Administration and Manpower, Management and Information Systems Division, Victoria

Mr. Joseph Michael RATH, Project Officer, Ministry of Environment, Victoria, Mahé

**SOUTH AFRICA**

Mr. Gerhard Bouwer, Principal Economist, Central Statistical Service, Pretoria, South Africa

**TANZANIA**

Mr. M. Mathew Bateman Chimtembo, Principal Statistician, Bureau of Statistics, President's Office, Planning Commission, Dar-es-Salaam

Mr. E.M.P. Sindato, Eastern Africa Statistical Training Centre (EASTC), Dar-es-Salaam, Tanzania

**UGANDA**

Mr. Gideon N. Badagawa, ISAE, Makerere University, Institute of Statistics & Applied Economics (Regional Project), Kampala, Uganda

Mr. Matthews M. Sewanyana, Principal Statistician, Ministry of Planning and Economic Development, Statistics Department, Entebbe, Uganda

Mr. Telly Eugene Muramira, Environment and Natural Resource Economist, National Environment Management Authority (NEMA), Kampala, Uganda

**ZAMBIA**

Mr. Modesto F. C. Banda, Assistant Director, Agriculture and Environmental Statistics, Central Statistical Office, Zambia

**ZIMBABWE**

Mr. Cyril N. Parirenyatwa, Deputy Director, Central Statistical Office, Harare, Zimbabwe



**SECRETARIAT**

**UNITED NATIONS STATISTICS DIVISION (UNSD/DESA)**

Mr. Peter Bartelmus, Chief, Environment, Energy and Industry Statistics Branch, Statistics Division, United Nations, New York

Ms. Reena Shah, Environment, Energy and Industry Statistics Branch, Statistics Division, United Nations, New York

**ECONOMIC COMMISSION FOR AFRICA, DEVELOPMENT INFORMATION SERVICES DIVISION**

Mr. Oumar M. Sy, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. D.W.M. Mzumara, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. O. Nino-Fluck, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mrs. Karen Cassamajor, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mrs. V. Tankou, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. A.K. Amelewonou, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. R. Rakotobe, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. S. Traore, UNECA, Development Information Services Division, Addis Ababa, Ethiopia

Mr. Sarim Kol, UNECA, Food Security and Sustainable Development Division (FSSDD), Addis Ababa, Ethiopia

Mr. Tekie Samuel, UNECA, Economic and Social Policy Division (ESPD), Addis Ababa, Ethiopia



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## **ANNEX II SELECTION AND USE OF INDICATORS**

### SELECTION AND USE OF INDICATORS

<b>Key issues</b>	<b>Main points</b>
1. What are the priority environmental issues and/or the statistical topics in your country (e.g. water quality, land degradation)?	
2. What are some of the statistical variables/indicators that reflect each of these issues/topics?	
3. Which indicators exist in your country?	
4. Are the data readily available for the selected indicators?	
5. Who are the main data users for the selected indicators?	
6. Does the IGWG list of indicators fully reflect these priority issues?	
7. Are there priority indicators for your country which are not included in the IGWG list? If yes, please include them here.	



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## **ANNEX III WORK SHEET FOR ENVIRONMENTAL INDICATORS**

## WORK SHEET FOR ENVIRONMENTAL INDICATORS

1. Name of indicator
2. Unit of measurement
3. Is the definition clear?
4. Are the classifications appropriate?
5. Are the measurement methods clear?
6. Are the data available for this indicator (available, partially available, not available)?
7. What are the data sources (national statistical service, appropriate ministry, university, monitoring station, research institute, other)?
8. How are the data collected (censuses and surveys, administrative records, ad-hoc surveys, monitoring, remote sensing, other)?
9. What is the data coverage (global, regional, sub-national, urban, rural, other)?
10. What is the periodicity of the data collection (annual, biannual, monthly, weekly, daily, hourly)?
11. What is your assessment of the data quality (good, varies, poor)?
12. What is the relevance of the indicator to environmental policy (crucial, important, potentially important, marginally relevant)?
13. If the data are not available for this indicator, is it feasible and cost-effective to compile these data?