

**UNSD/UNEP/ECOWAS**  
**WORKSHOP ON ENVIRONMENT STATISTICS**

ABUJA, NIGERIA  
19 - 23 MAY, 2008

**Final Report**

United Nations Statistics Division  
United Nations Environment Programme  
Economic Commission for West African States

## **Background and objectives of the workshop**

1. The United Nations Statistics Division (UNSD), the United Nations Environment Programme (UNEP) and the Commission of the Economic Community of West African States (ECOWAS) co-organized a workshop on environment statistics that was held in Abuja from 19 to 23 May 2008. The objectives of the workshop were to:
  - a. agree and adopt a core set of environmental indicators and statistics for the ECOWAS region for national and regional reporting based on the ECA list of environmental statistics and indicators agreed upon at the UNSD/UNEP/ECA Workshop on Environment Statistics in July 2007;
  - b. review draft methodologies for the set of indicators agreed upon at the Workshop;
  - c. review the draft ECOWAS regional programme on environment statistics; and
  - d. train participants from national statistical offices (NSOs) and ministries/agencies responsible for environment on basic concepts, methods and best practices in environment statistics.
  
2. The workshop was attended by participants from NSOs and Ministries of Environment of the ECOWAS Member States (Benin, Burkina Faso, Cote d'Ivoire, the Gambia, Ghana, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo). The National Institute of Statistics and the Environment Management Authority of Rwanda were also represented at the workshop, as well as the following regional/international organizations: the Food and Agriculture Organization of the United Nations (FAO), the International Union for the Conservation of Nature and Natural Resources – Regional Office of Central Africa (IUCN-ROCA), Ecole Nationale Supérieure de Statistique at d'Economie Appliquée (ENSEA), InWent Centre for Economic, Environmental and Social Statistics, the Network for Environment and Sustainable Development in Africa (NESDA), the African Development Bank (AfDB), and the United Nations Development Programme (UNDP-Nigeria). Two consultants assisting the ECOWAS Commission to prepare a regional programme on environment statistics also participated in the workshop.
  
3. The list of participants is attached as Annex 1.

## **Opening session**

4. Three addresses were made, respectively by Mr. Mahamadou Yahaya, Director of Research and Statistics, representing the Commissioner in charge of Macroeconomic Policy at the ECOWAS Commission, Ms. Eszter Horvath, Chief of Environment and Energy Statistics Branch, on behalf of UNSD, and Mr. Christopher Ambala, Associate Programme Officer, Division of Early Warning and Assessment, representing the UNEP. The three speakers stressed the need to institutionalise environment statistics at national and regional levels and to build the necessary capacity in that regard with the view to supporting the formulation and monitoring of environmental policy.

## **Election of the bureau and adoption of the agenda**

5. The meeting elected the following bureau:

Chair: Mr. Edrissa Ceesay (Gambia)

Rapporteurs : Mr. Michael Pappoe (Ghana) and Ms. Gnamien Eby Aya Josephine (Côte d'Ivoire).

6. The following agenda items were adopted:

1. The need for environmental statistics and indicators
2. Environmental statistics and indicators: concepts and methods
3. Institutional aspects of environment statistics
4. Statistics on freshwater, coastal and marine resources, environmental health and natural disasters
5. Statistics on land use and agriculture, forests and biodiversity
6. Statistics on air, energy and waste
7. Towards a regional programme of environment statistics
8. Adoption of report
9. Closing session.

7. The discussions were organised in both plenary and working group sessions. The work schedule is attached as Annex 2.

## **Outcome of deliberations**

### **Session 1: The need for environment statistics and indicators**

8. The presentations under this session were made by the ECOWAS Commission, the Nigerian delegation, UNSD and UNEP.
9. The two presentations by ECOWAS highlighted the regional needs for environment statistics and the regional programme on environment statistics being prepared by the Commission to institutionalise environment statistics at regional and national levels and build the necessary capacity in that regard. The first presentation recalled the ECOWAS Environmental Policy which has just been submitted to the ECOWAS Parliament for consideration, as statutorily required. The major environmental concerns at the regional level and the statistical needs for the implementation of the Policy were indicated. The second presentation highlighted the regional framework for strengthening capacity in the development and institutionalisation of environment statistics, adopted in January 2007 by the ECOWAS Authority.
10. The presentation made by the Nigerian delegation on the national needs for environment statistics highlighted the major environmental problems such as urban decay and squatter settlements, high population growth and climate change; and the monitoring initiatives that have been introduced. These include Environmental Impact Assessments (EIA) and the analysis of environmental-economic interactions with the use of satellite accounting. There is a current draft of Nigeria's State of the Environment (SOE) report as well as a draft bill on legal initiative on the environment.

11. The UNSD presentation was on the international requirements for environment statistics and indicators. A distinction was made between global and international statistics, the purpose of the first being the production of statistics for the world as a whole, and the production of internationally comparable country statistics as the objective of the second. The different international requirements were grouped into four categories, namely: (i) indicators to follow up on global conferences (MDG indicators, CSD<sup>1</sup> list of indicators of sustainable development, etc); (ii) reporting to international conventions (UNFCCC, Basel, etc); (iii) thematic/topical data collections by international organizations (e.g. agricultural statistics by FAO, energy statistics by UNSD, water quality data by UNEP GEMS Water); and (iv) comprehensive international environment statistics data collections (such as the OECD/Eurostat or the UNSD/UNEP questionnaires on environment statistics).
  
12. The four categories represent different objectives and different requirements in terms of the scope and detail of data as well as the level of aggregation. The UNSD/UNEP questionnaire and its linkages to the other types of international requests were described. The need for coordination and harmonization among international requests in order to avoid duplication and conflicting data as well as the need to reduce the burden on the countries created by the great number of requests was emphasized. Finally, the activities of the Inter-secretariat Working Group (IWG) on Environment Statistics that was established in 2003 to respond to these needs were presented.
  
13. The UNEP representative presented the Africa Environment Information Network (AEIN), the Global Environmental Outlook (GEO), and the Africa Environmental Outlook (AEO) initiatives, flagship vehicle of the UNEP integrated environmental assessment and reporting (IEA) processes. In addition, he highlighted UNEP's six priority areas that will be focused on in the Medium Term Strategy, 2010-2013. These are: Climate Change, Ecosystem Management, Environmental Governance, Hazardous Substances, Natural Disasters and Post Conflict Response and Resource Efficiency. The presentation also highlighted how the implementation of AEIN responds to Bali Strategic Plan for Technology Support and Capacity Building (para 3 (a), para 5, 10, 11, 22 and 23) which emphasizes the need for country ownership, the need to respond to country specific capacity building needs, and the data collection, research and analysis to support decision-making in governments. The presentation indicated that the goal of AEIN is to enhance accessibility of more reliable national environmental data and information for environmental assessment and reporting at national, sub-regional and regional levels as well as to support the AEO reporting process which provides an integrated analysis of emerging issues under the NEPAD Environment Action Plan thematic areas.

## **Discussion**

14. During the discussion, the participants emphasized the need for collaboration among institutions that produce statistics on the environment as well as the research institutions and universities. This strategy will bring together key national stakeholders in environment statistics and will lead to efficient use of the already limited human and financial resources of the national statistical system. It will also ensure that there are common terms of reference among the institutions and that policy relevance is attached to

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<sup>1</sup> Commission on Sustainable Development

the production of environmental data. ECOWAS is currently helping to coordinate activities at the national level. A recent meeting of all Meteorological heads is an example. There is the need for member countries to also adopt and implement the regional policies on the environment agreed by member countries.

15. Participants also raised the issue of ECOWAS helping member countries to develop capacity through training and also to involve international organisations like FAO to support countries update inventories on environmental data.

## **Session 2: Environmental statistics and indicators: concepts and methods**

16. Under this agenda item, four presentations were made by UNSD (on frameworks for environment statistics for the development of environmental indicators; linkages to environmental accounting; ECA list of environmental indicators) and the Ghana delegation (on Ghana experience).

### **Frameworks for environmental statistics for the development of indicators (UNSD)**

17. The presentation introduced the four major frameworks for environmental statistics and indicators, and indicators for sustainable development, which are the Framework for the Development of Environment Statistics (UNSD), the Pressure-state-response framework (OECD), the thematic/sub-thematic indicator framework (CSD) and the Driving force-pressure- impact- response framework (Eurostat and EEA). It described the historical developments in the CSD framework and the similarities and differences between the four frameworks mentioned above. The presenter described the Millennium Development Goals (MDG) Goal 7 indicators, and the Commission on Sustainable Development (CSD) indicators for sustainable development. She explained the similarities and differences between these two sets of indicators and emphasised that indicators should follow some minimum criteria, such as the SMART criteria (specific, measurable, achievable, reliable and time-bound).
18. An introduction was made by UNSD to the System of Environmental and Economic Accounting (SEEA) that explained the objective to present environmental and economic information in a common framework, based on the accounting concepts of the System of National Accounts (SNA). The SEEA is a satellite account of the SNA that describes stocks of environmental/natural resources and their flows within and between the environment and the economy in physical and monetary terms. The main concepts and the different modules of the SEEA were introduced.
19. UNSD presented the main milestones in the evolution and development of the ECA list of environmental indicators: the NEPAD data matrix; the discussions and conclusions of the first ECOWAS workshop on environment statistics in Dakar in 2005; the ECA Workshop on Environment Statistics that agreed on a core set of indicators in July 2007 and the subsequent work by UNSD on the refinement of the indicators and their methodologies. The presentation indicated that the indicators were to be discussed during the workshop in working groups to assess their relevance, the maturity of their methodology and the availability of data for their calculation.

20. The presentation by Ghana focused on the extent to which environment statistics has developed since 2005. The presentation highlighted environmental issues such as environment quality, major problems, effects, of human activities, and steps being taken to address these issues. It also mentioned the lack of effective collaboration among institutions on collation and compilation of environment statistics; lack of a sound statistical methodology for data acquisition and analysis on environment statistics; and lack of appropriate networking to strengthen and establish the environmental information system as major problems hampering the development of environment statistics in Ghana. The activities of the National Advisory Committee of Producers and Users of Statistics (NACPUS) to improve environment statistics and collaboration between institutions are some of the steps being taken in this regard.

### **Discussion**

21. Concerns were raised by participants on the practical applications of environmental accounting in developing economies when basic environment statistics is difficult to obtain. In addition, issues concerning different definitions for some water indicators which lead to different values were raised. Some participants also expressed the need for support to develop methodologies at country level in collaboration with researchers and other data producers.
22. Controversies in some of the definitions, due to different methodologies used by some international organisations, were pointed out. The need to adopt the MDG methodologies until the definitions have been revised was examined. On the issue of SEEA, it was explained that many countries (including some developing countries) are actively applying selected modules of the SEEA based on their national priorities.

### **Session 3: Institutional aspects of environmental statistics**

23. Three presentations were made during this session: on the ECOWAS Strategic Framework for the Development of Environment Statistics (by the ECOWAS Commission) and the training in environment statistics (by InWEnt and ENSEA).
24. The ECOWAS Commission presented the experience of the region in the area of environment statistics. It pointed out selected sub-regional initiatives that contributed to the effective implementation of the international conventions, including the Sub-Regional Action Programme (SRAP) to Combat Desertification, an initiative conceived jointly by the Comité Permanent Inter-Etats de la Lutte contre la Sécheresse dans le Sahel (CILSS), the Union Economique et Monétaire Ouest-africaine (UEMOA) and ECOWAS. The ECOWAS Environmental Policy under preparation and the regional workshop on environment statistics organized in 2005 for the member countries of ECOWAS, including the resulting Regional Framework on environment statistics (adopted in January 2007), were also mentioned.
25. The preparation of a regional programme on environment statistics, drawn from the Framework, is underway. Main issues to be addressed were: shortfall in the development of methodology for collecting data in various institutions; shortfall in the number and quality of personnel in environment statistics; lack of financial means and inadequate equipment for data collection, analysis and dissemination; difficult access to information; and absence of a unit responsible for environment statistics. An evaluation questionnaire

on country needs to be used by the consultants for the preparation of the programme was presented, as well as a proposal on an adequate structure for environment statistics in Member States.

26. The representative of InWEnt made a presentation of the training programmes organised by InWEnt for capacity building in developing countries. He mentioned that since 1973, InWEnt has organised training for more than 2,200 participants from different countries, particularly for producers and users of statistics. Online training programmes on Environment Statistics, Public Relations and Statistics as well as other programmes are organised on the Global Campus as well as blended programmes comprising both online and classroom training in Bonn, Germany, and in other countries. InWEnt plans for further training programmes to support national implementation of programmes, enhancing cooperation and also in areas such as climate change. InWEnt also plans to organise International Leadership training from 2009.
27. The representative of ENSEA made a presentation on the work of the institute in building capacity for francophone countries, through training of statisticians in statistics, econometrics, economy, demography and computer science (including statistical practice and tailored courses). To date, the courses on environment statistics form part of those on “sectoral statistics”. However taking into account the importance of the subject, ENSEA envisages to set up a training module in environment statistics, and would need the collaboration of partners to define the contents of the module for the training of trainers. In the medium term, the Institute would extend its training activities to the English-speaking and Portuguese-speaking countries.

## **Discussion**

28. During the discussion, participants expressed their concern about the quality of the outputs produced in the countries and suggested the establishment of strong collaboration among data producing institutions and also among countries, with support from regional and international institutions. The discussion then focused on the following issues:
  - Need for collaboration and coordination among NSOs and sectoral ministries responsible for environmental data and information on the various elements of the environment;
  - The need for professional/scientific autonomy of NSOs which can also lead to improved availability and accessibility of data and information to various users;
  - The need for data sharing and networking and therefore the importance of frameworks such as memoranda of understanding (MOUs) and legislation to facilitate data and information sharing; and
  - The need to build the capacity for data collection in line ministries. This is in recognition of the fact that some data require technical background in specialized disciplines.
29. Participants also expressed the need for InWEnt to collaborate with ENSEA in Abidjan for training in the ECOWAS region. The two institutions explained that trainers are willing to go to countries of trainees to organise training for them.

#### **Session 4: Statistics on fresh water, coastal and marine resources, environmental health and natural disasters**

30. Under this session, a series of five presentations was made by UNSD, the International Union for Conservation of Nature and Natural Resources (IUCN) and FAO on Natural disasters statistics and indicators, Indicators of Coastal and marine resources, Fisheries statistics, Freshwater statistics and indicators, and Environmental health indicators.
31. The main concepts, classifications, definitions and variables of natural disaster statistics were introduced by UNSD. The presentation covered the main international data sources, and the draft questionnaire that is planned to become a part of the UNSD/UNEP Questionnaire on Environment Statistics. Indicators related to natural disasters contained in the CSD, NEPAD and ECA lists were also presented.
32. The representative of IUCN described their experience in the management, assessment and indicators of coastal and marine resources through its Marine Programme at global and regional levels. He pointed out the challenges that include overexploitation of coastal & marine resources, loss of biodiversity, environmental degradation, pollution, coastal erosion, low levels of investment in alternative coastal livelihood programs, mariculture, tourism, governance, lack of institutional coordination, control and surveillance of fishing operations, as well as illegal, unregulated and unreported catches. Those threats are further exacerbated by impacts of climate change and recent evidence of the regions propensity to extreme events such as the tsunami and other natural disasters.
33. He focused on the IUCN response to these threats with community livelihoods in coastal areas, coastal planning, the management of coastal erosion, coastal/marine pollution and solid waste, climate change impacts, interaction of fresh water and coastal/marine systems, governance of coastal and marine issues and governance in high seas. The large marine ecosystems approach to the assessment and governance of ocean coastal resources was mentioned as an example. Indicators of changing ecosystem state, fish, fishery and pollution, and ecosystem health were also presented.
34. The representative of FAO Statistics Division made a presentation on fisheries and aquaculture statistics. He gave an overview of FAO's global and regional datasets in FAOSTAT. He gave an indication of the environmental costs of aquaculture and other food production, as well as the state of world fisheries and aquaculture.
35. UNSD gave an introduction to the need for water statistics and an overview of its main components, and the international, regional and national sources of data. The water tables of the UNSD/UNEP Questionnaire were presented and explained including their linkages to the standard tables of the System of environmental-economic accounting for water resources (SEEAW). The presentation focused on the indicators that can be derived from the data requested by the questionnaire (freshwater resources, abstraction and use of freshwater by the different economic activities and households, wastewater treatment and discharge, and water quality). Other important areas (such as emissions of pollutants in waste water) are not yet covered by the Questionnaire, due to lack of national data. A summary of the water-related indicators in the MDG, CSD and ECA lists was also presented.



36. UNSD also made a presentation on environmental health indicators. Reference was made to the World Health Organisation (WHO) definition and the application of the Driving force-Pressure-State-Impact-Response (DPSIR) framework to Environmental Health. The presentation focused on the relationship between environmental health and access to safe water and sanitation, and environmentally-related diseases which are categorised into: water-related diseases, diseases related to air quality, diseases relating to climate, and epidemic diseases. Finally, the ECA list of environmental health indicators was finally presented.

### **Discussions**

37. The participants expressed the view that environmental health indicators should include indicators on maternal and infant mortality in addition to environmentally-related diseases to have a comprehensive link of the effects of the environment on health.

### **Session 5: Working group session on indicators data availability and data collection**

38. In working groups, participants discussed proposed indicators in the areas of fresh water, coastal and marine resources, environmental health and natural disasters, including priority environmental issues, lead indicators, data availability, data collection, and main sources of data. The agreed upon indicators sets in the above areas are contained in Annex 3.

### **Session 6: Statistics on Land use and agriculture, Forests and Biodiversity**

39. Four presentations were made by UNSD, FAO and IUCN-ROCA on land use and land degradation, land use statistics, environment and agriculture, and biodiversity statistics.

40. UNSD presented the main concepts, definitions, and classifications in the land section of the UNSD/UNEP Questionnaire on Environment Statistics covering land use and land degradation (soil erosion, salinization and desertification). The relationship between the data compiled by FAO on agricultural and forest land, and the remaining data requested through the UNSD/UNEP Questionnaire was explained. The presentation also described the potential data sources and some of the difficulties encountered in data collection. Finally, the land use and land degradation indicators from the ECA List of Environmental Indicators were presented.

41. The FAO representative presented the FAO Land Use database (including data sources, updates, and accessibility). He pointed out that land use is the single most important driver of land degradation as it focuses on interventions on the land which directly affect its status and impacts on goods and services. Land use information is required at the local level (for physical planning and land management), at the national level (for overall resource policy and management, including planning for future use of land and for protection of the environment), and at the international level (for comparative descriptions and analysis of national patterns, as well as extending and monitoring assistance programmes). It was indicated that since 2002, land use information is compiled through an integrated Resource Questionnaire, covering four main areas: (i) Land use and Irrigation, (ii) Land use – Plantations, (iii) Land prices, and (iv) Metadata.

42. The FAO representative also presented the linkage between environment and agriculture with a focus on the issues and concerns for developing countries. The presentation highlighted the impact of agricultural inputs like irrigation, fertilizers, pesticides, agricultural machinery, and land use on environmental conditions. The relevant sources of data including the AQUASTAT the FAO FertiBase, and the FAOSTAT database were also presented.
43. IUCN-ROCA presented assessment indicators for species loss and biodiversity statistics. Participants were informed that the IUCN Red List Programme aims at identifying and documenting those species most in need of conservation attention if global extinction rates are to be reduced. A global index of the state of degeneration of biodiversity was also presented. The presenter highlighted the importance of monitoring biodiversity at the species level and indicated that trends in species status can be used in many instances as a proxy to measure ecosystem integrity, health and services, management effectiveness, and sustainable use.
44. The presenter also focused on the ecosystems approach and indicators, as well-managed landscapes and seascapes are at the basis of sustainable development and human security. They are critical to addressing underlying causes of biodiversity loss, and an essential requirement for meeting the MDGs. He presented IUCN's work on ecosystem management which draws on its Commission on Ecosystem Management (CEM), a global network of experts that is supported by the IUCN Ecosystem Management Programme (EMP) as well as on its regional and global thematic programmes. He indicated that managing ecosystems effectively thus requires the development of baseline standard against which changes within ecosystems can be measured. He mentioned the collaboration between the CEM, the Millennium Ecosystem Assessment Project, the Society for Conservation Biology and other partners in developing indicators of the status of ecosystems around the world. He recalled the World Commission on Protected Areas (WCPA) mission to "promote the establishment and effective management of the worldwide representative network of terrestrial and marine protected areas, as an integral contribution to the IUCN mission", and presented the World Database on Protected Areas (WDPA) as well as IUCN protected areas categories.

## **Discussion**

45. Participants expressed concerns about differences between some country data and FAO data. It was proposed that data harmonisation be done at national stakeholder meetings to avoid providing different data for the same country. Support for country activities in collecting more reliable data is crucial if data are to be used internationally. It was advised that countries work step by step in the implementation programme to ensure quality data for completing the questionnaire from UNSD/UNEP as well as adopting the core list of indicators. There is the need for countries to be responsible for data collection and prompt reporting on progress from funds from UNEP.

### **Session 7: Working group on the selection of indicators, data availability and data collection**

46. In working groups, participants discussed proposed indicators in the areas of Land use and agriculture, Forests and Biodiversity. The agreed upon indicator sets in the above areas are contained in Annex 3.

### **Session 8: Statistics on Air, Energy and Waste**

47. Under this session UNSD made three presentations on statistics and indicators of air and climate, energy and waste. The representative of Mali made a presentation on national experience.
48. UNSD presented the tables of the Air section of the UNSD/UNEP Questionnaire. The section includes tables on emissions of greenhouse gases (GHG) and selected air pollutants, and also tables on ambient air quality, namely the concentration of pollutants measured at stations selected according to prescribed criteria. National and international sources of data were presented. The tables on emissions follow the Intergovernmental Panel on Climate Change (IPCC) practices for GHG emissions. The presenter stressed the need for calculating emissions also according to industries based on ISIC to allow for linkages with the economic data on activities that cause the emissions. The ECA indicators related to air and climate and the methods for their calculation were highlighted. The indicators selected for regional use are identical with those contained in the MDG list and the CSD list of Indicators of Sustainable Development (ambient air quality in urban areas, GHG emissions and ozone depleting substance, hydro-meteorological indicators of climate change). The presentation recalled the commitment of countries to reporting to the United Nations Framework Convention on Climate Change (UNFCCC) and emphasized the difficulties, quality and comparability problems associated with the use of data from air quality monitoring stations.
49. UNSD introduced the ECA indicators related to energy production, use and accessibility. The presentation explained the indicators and the related concepts, methods and definitions, as well as issues relating to the availability of data at national level for the calculation of the indicators. It pointed out that most indicators in the ECA list are based on the national energy balances that are not typically available in all ECOWAS countries. It also drew the attention to the difficulties of measuring certain aspects of energy, such as the consumption by end uses, the ratio of traditional fuels or that of renewables in the energy supply.
50. The presentation of UNSD on the UNSD/UNEP Questionnaire on Waste highlighted the main concepts, definitions, and classifications in the waste section of the Questionnaire. This included the waste cycle from generation to disposal or recovery, types of waste, types of waste treatment, waste producers according to ISIC, and the link to the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal. The presentation explained the two main approaches to waste classification and described the potential data sources such as national registers, municipalities, waste treatment facilities, waste collectors and industries. The waste indicators from the ECA List of Environmental Indicators were also presented.

### **Country experience (Mali)**

51. The Mali presentation was on the implementation of African Environment Information Network in Mali after the initiation of the second phase in Nairobi. The network has helped in the sharing of data among participating institutions. The fruitful support from UNEP through MOUs among the institutions was also pointed out. The presentation indicated that focal persons were identified at the institutional level to be responsible for completing questionnaires on environment statistics. It encouraged participating countries to put in place structures for networking and sharing of environmental data. Challenges included the issue of outdated and scattered data in institutions, among others.

### **Discussion**

52. The discussions revealed the need for unified guidelines for national data compilation to resolve the discrepancy occurred from using different data sources. Also, participants recognized the need to closely link the production of carbon dioxide (CO<sub>2</sub>) to agricultural production. Participants identified deforestation as a major problem for climate change and the indicator on deforestation should be a priority indicator to be monitored. The need to institutionalize the compilation of environment statistics and improve the cooperation and capacity building activities among line-ministries responsible at national level was highlighted during the discussion. Participants also provided information about the availability of various types of activity data for the purpose of analyzing national or regional environment impact of climate change.

53. The need for capacity building at the sub-regional level for waste management was also emphasised by participants. The issue of imports of waste into some countries was equally discussed.

54. Participants expressed the need to implement the AEIN in member countries in order to be able to build capacity to close data gaps, complete the UNSD/UNEP questionnaire and encourage stakeholder participation in data exchange. They also requested for the assessment of the availability of data for the indicators proposed.

### **Session 9: Working group session on the selection of indicators, data availability and data collection**

55. In group sessions, participants discussed the indicators proposed on Waste, Air and Energy. It was specifically proposed to assess the data availability of some indicators recommended on Waste. The difficulties of producing some of the indicators at the national level were also discussed. The agreed upon indicator sets in the above areas are contained in Annex 3.

## **Session 10: Towards a regional programme of environment statistics**

55. The consultants made a presentation on the modalities for establishing structures at the national level for stakeholder involvement in the work of environment statistics. They emphasised the need to complete the capacity needs assessment forms proposed by them to enable ECOWAS assess the country capacity and to develop a comprehensive framework for implementing programmes in environment statistics at the national as well as at the sub-regional level. The compilation of a compendium on environment statistics was mentioned as priority activity under the programme on environment statistics that is being prepared by the ECOWAS Commission.

### **Recommendations**

#### **The participants of the Workshop on Environment Statistics held in Abuja, Nigeria, from 19 to 23 May 2008,**

*Recalling* the recommendations of the UNSD/UNEP/ECOWAS (Dakar 2005) workshop on concepts, methods and institutionalization of environmental statistics and indicators in ECOWAS Member States;

*Recalling* the recommendations of the UNSD/UNEP/ECA Workshop on Environment Statistics (Addis Ababa, 16-20 July 2007) on a regional programme on the development of environment statistics, including a core set of environmental indicators and statistics for national and regional reporting;

*Appreciative of* the progress accomplished by the ECOWAS Commission in the implementation of the Dakar recommendations, with the adoption in 2006 of the Strategic Framework to Strengthen Capacity and Institutionalize Environment Statistics in the ECOWAS Region and the establishment of the Regional Committee on Energy and Environment Statistics to monitor the implementation of the Framework, as well as the on-going steps undertaken for the implementation of the strategic framework, through the formulation of a 5-year programme on environment statistics;

*Recognizing that* the implementation of the ECOWAS strategic framework will greatly contribute to the development of environment statistics in the region;

*Having* considered the issues on the agenda of the workshop, as well as national, sub-regional, regional, and international reports on: (i) Environmental policy and the need for environmental indicators and statistics; (ii) Concepts and methods of environmental statistics and indicators; (iii) Institutional aspects of environmental statistics; (iv) Statistics on freshwater, coastal and marine resources, environmental health and natural disasters; (v) Statistics on land use and agriculture, forests and biodiversity; (vi) Statistics on waste, air and energy; and (vii) The ECOWAS regional programme on environment statistics;

*Appreciative of* the role played by UNSD, UNEP and other regional and international partners in the collection and dissemination of data on environment statistics and indicators;

*Appreciative of* the financial and technical assistance provided by UNSD and UNEP to the ECOWAS region in building capacity on environment statistics;

*Bearing in mind* the critical role of environment statistics in sustainable development policies and programmes, as well as problems posed by data collection, processing and dissemination, and the necessity for coordination and networking in that regard;

*Aware* of the critical needs for training in environment statistics and indicators;

*Recognizing* the importance of the National Strategy for the Development of Statistics (NSDS) as the overarching framework for statistical capacity development in general, and for the institutionalisation and development of environment statistics in particular;

*Aware* of the NEPAD Initiative on Environment and the action plan for its implementation;

**Recommended:**

To the ECOWAS Commission:

*Institutional and coordination issues*

Necessary arrangements should be made to finalise the programme on environment statistics for adoption, and initiate its implementation, as soon as possible;

*Data collection and dissemination*

The compilation of a compendium on environment statistics for the ECOWAS region, based on the agreed core list of environmental indicators, should be considered as a priority of the regional programme on environment statistics;

*Networking*

National institutions and agencies should be sensitized on the need for data exchange and networking, within frameworks such as the Africa Environment Information Network (AEIN);

*Advocacy*

Necessary arrangements should be made, through the ECOWAS statutory organs, and within the framework of the ECOWAS Regional Statistical Programme, to create awareness and sensitize Member States on the importance of environment statistics and indicators for the monitoring of national and regional environment policies and programmes.

To the ECOWAS Commission, UNSD and UNEP:

*Institutional and coordination issues*

In moving forward the ECOWAS regional programme on environment statistics, necessary arrangements should be made by the Commission and partners to ensure that the modules of the programme and their implementation are harmonized with the recommendations of the Addis Ababa workshop on environment statistics. The programme should also build on existing mechanisms and initiatives in the priority areas, including training, data collection, analysis and dissemination.

#### *Core set of environmental indicators*

The core set of ECOWAS indicators, adopted by the workshop, should be finalized and their methodologies refined by a task force comprising experts from selected countries and institutions;

#### *Data collection and dissemination*

A regional strategy on data collection should be designed, based on a data assessment and the different initiatives at national, regional and international levels, and aimed at complementing existing data collection mechanisms to fill the data gaps;

#### *Methodological development and Capacity building*

Efforts should be made to organize expert group meetings to review the methodologies and training materials;

Targeted workshops on a thematic basis should be organized to train country experts on the use of the methodologies to improve the data collection. This should be carried out in collaboration with regional and international statistical training centres;

#### To UNSD and UNEP:

##### *Institutional and coordination issues*

Workshops with similar objectives should be organized for all sub-regions in Africa in collaboration with relevant institutions in these sub-regions, starting with the Central African region;

UNSD and UNEP should expand the scope of the UNSD/UNEP Questionnaire on Environment Statistics to include topics such as natural disasters, coastal and marine environment, and biodiversity.

#### To AFDB:

##### *Institutional and coordination issues*

Necessary arrangements should be made by the African Development Bank, in collaboration with national, regional and international institutions, to design a strategy to support the development of environment statistics in the ECOWAS region;

#### To Member States:

### *Institutional and coordination issues*

ECOWAS Member States should cooperate with regional and international institutions for effective implementation of the recommendations. They should also make necessary arrangements for the development and institutionalization of environment statistics, such as the establishment of environment statistics units and of Inter-agency Task Forces on Environment Statistics.

#### **Adoption of report**

The present report was adopted by the workshop.

#### **Closing session**

The Chairman of the meeting, Mr. Edrissa Ceesay, congratulated the participants for their contributions in the discussions. He wished them a safe journey back to their respective countries and declared the workshop on environment statistics closed.



**Annex 1**  
**List of Participants**

<b>BENIN</b>	
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## Annex 2

### Work Schedule

#### Monday, 19 May

9:00-9:30 Registration

<b>9:30-10:30</b>	<b>Opening session</b>
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- |             |  |
|-------------|--|
| 9:30-9:40   | - Welcome address (ECOWAS)                                     |
| 9:40-9:50   | - UNSD   |
| 9:50-10:00  | - UNEP   |
| 10:00-10:10 | - Election of officers<br>Adoption of agenda and work schedule |

10:10-10:30 *Coffee Break*

<b>10:30-12:30</b>	<b>Session 1: The need for environment statistics and indicators</b>
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- |             |  |
|-------------|--|
| 10:30-11:10 | - ECOWAS Policy and Statistics Framework on Environment (ECOWAS) |
| 11:10-11:20 | - Discussion   |
| 11:20-11:40 | - National needs (Nigeria)                                       |
| 11:40-12:00 | - International needs (UNSD)                                     |
| 12:00-12:30 | - AEIN/GEO/AEO initiative and Africa Data Portal (UNEP)          |
| 12:30-12:40 | - Discussion   |

12:40-2:00 *Lunch*

<b>2:00-4:00</b>	<b>Session 2: Environment statistics and indicators: concepts and methods</b>
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- |           |  |
|-----------|--|
| 2:00-2:30 | - Frameworks for environment statistics and for the development of indicators (UNSD) |
| 2:30-2:45 | - Linkages to environmental accounting (UNSD)  |
| 2:45-3:15 | - The ECA list of environmental indicators (UNSD)                                    |
| 3:15-3:30 | - Discussion   |
| 3:30-4:00 | - Country presentation (Ghana)   |

4:00-4:30 *Coffee Break*

<b>4:30-5:30</b>	<b>Session 3: Institutional aspects of environment statistics</b>
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- |           |   |
|-----------|---|
| 4:30-5:00 | - ECOWAS Programme on Environment Statistics (ECOWAS) |
| 5:15-5:30 | - Discussion  |



## Tuesday, 20 May

<b>9:00-9:30</b>	<b>Session 3: Institutional aspects of environment statistics (contd.)</b>
9:00-9:30	- Training in environment statistics (INWENT and ENSEA)
<b>9:30-12:30</b>	<b>Session 4: Statistics on Freshwater, Coastal and marine resources, Environmental health, and Natural disasters</b>
9:30-10:00	- Natural disasters statistics and indicators; UNSD/UNEP Questionnaire draft 'Natural Disasters' tables (UNSD)
10:00-10:30	- Indicators of Coastal and marine resources (IUCN) - Fishery statistics (FAO)
10:30-11:00	<i>Coffee Break</i>
<b>11:00-12:30</b>	<b>Session 4: Statistics on Freshwater; Coastal and marine resources; Environmental health, and Natural disasters (contd.)</b>
11:00-12:00	- Freshwater statistics and indicators; UNSD/UNEP Questionnaire 'Water' tables (UNSD)
12:00-12:30	- Environmental health indicators (UNSD)
12:30-2:00	<i>Lunch</i>
<b>2:00-5:00</b>	<b>Session 5: Working group session on the selection of indicators, data availability and data collection</b>
2:00-3:30	- Moderated discussion in groups
3:30-4:00	<i>Coffee Break</i>
4:00-5:00	- Presentation of agreed indicators to plenary session

## Wednesday, 21 May

<b>9:00-12:30</b>	<b>Session 6: Statistics on Land use and agriculture, Forests and Biodiversity</b>
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- |            |   |
|------------|---|
| 9:00-9:30  | - Land Use indicators; the UNSD/UNEP Questionnaire 'Land Use' and "Land degradation" tables (UNSD)  |
| 9:30-10:30 | - Land Use Statistics (FAO) <ul style="list-style-type: none"><li>• FAO Land Use database: presentation, data sources, updates, accessibility. International versus country data.</li><li>• Land use/land cover classifications. Sources of data: land registers, remote sensing. (Focus: Agriculture and Forestry)</li><li>• Statistics on Land tenure</li></ul> |

10:30-11:00 *Coffee Break*

<b>11:00-12:30</b>	<b>Session 6: Statistics on Land use and agriculture, Forests and Biodiversity (contd.)</b>
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- |             |   |
|-------------|---|
| 11:00-12:00 | - Indicators on Agriculture and Forests (FAO)   |
|             | - Agriculture and forest statistics (FAO) <ul style="list-style-type: none"><li>• Environmental impact of the use of irrigation, fertilizers and pesticides</li><li>• Forest statistics</li></ul> |
| 12:00-12:30 | - indicators on Biodiversity (IUCN)   |

12:30-2:00 *Lunch*

<b>2:00-5:00</b>	<b>Session 7: Working group session on the selection of indicators, data availability and data collection</b>
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|-----------|--|
| 2:00-3:30 | - Moderated discussion in groups                       |
| 3:30-4:00 | <i>Coffee Break</i>                                    |
| 4:00-5:00 | - Presentation of agreed indicators to plenary session |

## Thursday, 22 May

<b>9:00-12:30</b>	<b>Session 8: Statistics on Air, Energy and Waste</b>
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- |             |   |
|-------------|---|
| 9:00-10:00  | - Statistics and indicators on Air; the UNSD/UNEP Questionnaire 'Air' tables (UNSD) |
| 10:00-10:30 | - Indicators on Energy (UNSD)   |
| 10:30-11:00 | <i>Coffee Break</i>   |

<b>11:00-12:30</b>	<b>Session 8: Statistics on Air, Energy and Waste (contd.)</b>
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- |             |  |
|-------------|--|
| 11:00-11:30 | - Indicators on Waste; the UNSD/UNEP Questionnaire 'Waste' tables (UNSD) |
| 11:30-12:30 | - Country presentation (Mali)  |
| 12:30-2:00  | <i>Lunch</i>   |

<b>2:00-5:00</b>	<b>Session 9: Working group session on the selection of indicators, data availability and data collection</b>
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- |           |  |
|-----------|--|
| 2:00-3:30 | - Moderated discussion in groups                       |
| 3:30-4:00 | <i>Coffee Break</i>                                    |
| 4:00-5:00 | - Presentation of agreed indicators to plenary session |

## **Friday, 23 May**

<b>9:00-12:00</b>	<b>Session 10: Towards a regional programme of environment statistics</b>
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9:00-10:30 - Towards a regional programme on environment statistics (ECOWAS)

10:30-11:00 *Coffee Break*

11:00-12:00 - Towards a regional compendium on environment statistics (ECOWAS)

<b>12:00-1:00</b>	<b>Closing session: adoption of conclusions and recommendations (UNSD/UNEP/ECOWAS)</b>
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<b>1:00-1:15</b>	<b>Evaluation</b>
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## Annex 3

### Core set of indicators

MDG – Millennium Development Goals

CSD – Commission on Sustainable Development

#### **Natural Disasters and Environmental Performance**

Priority area	Indicator
Exposure to natural disasters	Percentage of population living in hazard prone areas [CSD]
	Frequency of extreme events*
Impacts of natural disasters	Human and economic loss due to natural disasters [CSD]
Early warning systems	Proportion of population having access to information on natural disasters from early warning systems**
Adaptive capacity	Public expenditure on disaster reduction and related measures as a percentage of Gross National Income (GNI)

\* Indicates repetition of the indicator in the Air section.

\*\* The indicator needs further development.

#### **Air**

Priority area	Indicator
Air quality	Ambient concentrations of air pollutants in urban areas [CSD]
Climate change	Carbon dioxide emissions, total, per capita and per \$1 GDP (PPP) [MDG]
	Emissions of greenhouse gases [CSD]
	Frequency of extreme events *
	Deviation of annual average precipitation from long-term annual average
	Deviation of annual average temperature from long-term annual average
Ozone layer depletion	Consumption of ozone-depleting substances [MDG]

\* Indicates repetition of the indicator in the Natural Disasters and Environmental Performance section.

## Land

Priority area	Indicator
Land tenure/ownership	Proportion of population with secure land tenure
	Percentage distribution of land area by ownership rights**
Land quality (degradation)	Land affected by desertification [CSD]
	Land degradation [CSD]
	Proportion of land area affected by contamination
Land use change	Land use change [CSD]

\*\* The indicator needs further development.

## Agriculture

Priority area	Indicator
Agriculture	Agricultural Production Index [FAO]
Irrigation	Proportion of agricultural land area under irrigation
Use of pesticides/ fertilizers	Use of agricultural pesticides [CSD]
	Number of reported cases of pesticide contamination
	Use of fertilizers
Rangeland carrying capacity	Livestock pressure over carrying capacity

## Forests and woodlands

Priority area	Indicator
Forest change	Proportion of land area covered by forest [MDG]
	Proportion of forests damaged**
	Area of forest under sustainable forest management [CSD]
	Rate of afforestation/ deforestation
Forest resources management	Proportion of exports of forestry products
Established protected forest areas	Proportion of protected forest area to the total forest area

\*\* The indicator needs further development.

## Coastal and Marine Resources

Priority area	Indicator
Urbanization of coastal zones	Percentage of total population living in coastal areas [CSD]
Coastal and marine pollution	Proportion of coastal areas affected by pollution**
	Coastal water quality
	Number and area of marine aquaculture sites
Coastal erosion/ sedimentation	Coastal area lost to erosion**
Marine biodiversity	Number of marine species, threatened and extinct
	Change in area under mangrove forest
	Proportion of marine area protected [CSD]
	Total & per capita marine fish catch
	Total & per capita marine aquaculture fish catch
	Proportion of fish stocks within safe biological limits [MDG]
Climate change - sea level rise	Annual sea level change
Poverty eradication	Proportion of population making a living from marine resources

\*\* The indicator needs further development.

## Freshwater

Priority area	Indicator
Water accessibility	Proportion of population using an improved drinking water source [MDG]*
	Proportion of population served by the water supply industry
Water availability	Proportion of total water resources used [MDG]
	Proportion of population using harvested rainwater
	Ratio of external renewable water resources to total renewable water resources
	Total annual renewable water resources per capita
	Change in surface water discharge
	Annual groundwater recharge
	Urban water supply from dams**
	Proportion of population using water from boreholes for domestic use in rural/urban settings
Water quality (pollution)	Emissions of organic water pollutants (BOD) total/per worker
	Biochemical oxygen demand in water bodies [CSD]
	Chemical oxygen demand in water bodies
	Average annual concentration of total phosphorus in lakes and rivers
	Average annual concentration of total dissolved solids/sediment flux in lakes and rivers**
	Average annual concentration of total nitrogen in lakes and rivers
	Average annual concentration of dissolved oxygen in lakes and rivers
	Presence of faecal coliforms in freshwater [CSD]
Water use	Total annual water use per capita
	Proportion of freshwater used by economic activity
	Water use intensity by economic activity [CSD]
Water management issues	Wastewater treatment [CSD]
	Proportion of population connected to wastewater collection system
	Volume of treated wastewater for domestic use
	Volume of wastewater disposed into wetlands**

\* Indicates repetition of the indicator in the Health and Environment section.

\*\* The indicator needs further development.



## **Biodiversity**

<b>Priority area</b>	<b>Indicator</b>
Ecosystem	Proportion of terrestrial area protected by ecological region [CSD]
Wetlands	Number of wetland species, threatened and extinct
	Change in the area of wetlands
	Number of Ramsar sites
	Proportion of rehabilitated area of wetlands
Species	Threatened plant species as a percentage of total known plant species
	Threatened animal species as a percentage of total known animal species
	Proportion of species threatened with extinction [MDG]
	Abundance of selected key species [CSD]
Invasive species	Abundance of invasive alien species [CSD]

## **Energy**

<b>Priority area</b>	<b>Indicator</b>
Energy production	Primary energy production total, per capita and by source
	Electricity production total, per capita and by source
Energy consumption	Share of renewable sources in total energy use [CSD]
	Share of imports in total energy supply
	Intensity of energy use, total and by economic activity [CSD]
	Annual energy consumption, total and by main user category [CSD]
	Total energy consumption per capita
	Traditional fuel use as a percentage of total energy consumption
Access to electricity	Share of households with access to electricity

## Waste

Priority area	Indicator
Waste generation and management	Generation of waste [CSD]
	Waste treatment and disposal [CSD]
	Municipal waste collected per capita
	Composition of municipal waste by main material groups
	Proportion of population served by municipal waste collection
	Generation of hazardous waste [CSD]
	Hazardous waste imported/exported
	Number and capacity of facilities for the disposal of hazardous waste

## Health and Environment

Priority area	Indicator
Mortality	Under five mortality rate [MDG]
	Maternal mortality ratio per 100,000 live births [MDG]
	Mortality rate
Health care	Percent of population with access to primary health care facilities [CSD]
	Public expenditure on health as a percentage of Gross National Income (GNI)
Access to safe water and sanitation	Proportion of population using an improved sanitation facility [MDG]
	Proportion of population using an improved drinking water source [MDG]*
Informal settlements	Proportion of urban population living in slums [MDG]
	Informal settlements, area and percentage of population
Diseases related to water	Incidence of water-related diseases
Diseases related to air quality	Incidence of air quality related diseases

\* Indicates repetition of the indicator in the Freshwater section.

## Governance – new section

<b>Priority area</b>	<b>Indicator</b>
International and regional legal instruments and mechanisms	Ratification of international and regional environmental legislation
National legal instruments and mechanisms	Developed national & river basin Integrated Water Resources Management plans

## Proposed Indicators for Future Work

<b>Section</b>	<b>Priority Area</b>	<b>Indicator</b>
Biodiversity	Transboundary ecosystems (marine and terrestrial)	None identified

<b>Section</b>	<b>Priority Area</b>	<b>Indicator</b>
Expenditures	Public expenditures in various sectors	Public expenditures in various sectors as a percentage of GNI
	Cost of waste management	

<b>Section</b>	<b>Priority Area</b>	<b>Indicator</b>
	Employment in environmental services/industries	Number of jobs created by the sector
		Percentage of the active population working in the sector