

**WORKSHOP ON ENVIRONMENT
STATISTICS FOR THE
COUNTRIES IN THE ECOWAS REGION**

DAKAR, SENEGAL
28 FEBRUARY TO 4 MARCH 2005

Final Report

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

WORKSHOP ON ENVIRONMENT STATISTICS IN THE COUNTRIES OF THE ECOWAS REGION

(DAKAR, 28 FEBRUARY-4 MARCH 2005)

REPORT

Background and objectives of the workshop

1. The project on Strengthening Statistical Capacity-Building in Support of the Millennium Development Goals in the region of the Economic Community of West African States (ECOWAS) is being executed by the United Nations Department of Economic and Social Affairs (DESA) Statistics Division in cooperation with ECOWAS Secretariat. It aims to strengthen national statistical systems in the countries of the ECOWAS region and the inter-regional cooperation among these systems.
2. Within the framework of the above-mentioned project, the United Nations Statistics Division (UNSD), the United Nations Environment Programme (UNEP), the Economic Commission for Africa (ECA) and the ECOWAS Secretariat co- organized a workshop on environment statistics.
3. The objectives of the workshop were to familiarize participants with concepts and methods of environmental statistics and indicators, provide a forum for exchange of information on the status of national environment statistics, and establish a network of environmental statisticians in the region.

Organization of the Workshop

4. The Workshop was held at the African Institute for Economic Development and Planning (IDEP), a subsidiary body of ECA, in Dakar, Senegal from 28 February to 4 March 2005, with local support of the United Nations Development Programme (UNDP).
5. The workshop was attended by participants from all fifteen ECOWAS member countries (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo) representing National Statistical Offices, Ministries of Environment and/or other relevant national organizations. The Ministry of Environment of Mauritania was also represented.
6. The following international/regional organizations were also present: Food and Agricultural Organization of the United Nations (FAO), African Development Bank (ADB), AFRISTAT, Network for Environment and Sustainable Development in Africa (NESDA), Southern Africa Research and Documentation Centre (SARDC), Indian Ocean

Commission (IOC), National Environment Management Authority of Uganda, and the International Agency for Development and Environmental Information.

Opening Session

7. At the opening session, the addresses were respectively made by Mr El Hadj Malick Diame, representing the Government of Senegal, Mr Alberick Kacou, the UN Resident Coordinator and UNDP Representative Resident in Senegal, Mr Diery Seck, Director of IDEP, Mr Ulrich Wieland, representing UNSD, Mr Christopher Ambala, representing UNEP, and Mr Akou Adjogou, representing the ECOWAS Secretariat. They welcomed the participants and highlighted the importance of environment statistics, particularly for the West Africa region, and the need for a coordinated framework at both national and regional levels for the production and the dissemination of accurate, reliable and timely statistics on environment for the ECOWAS region. The regional character of environmental issues was also recognized. Significant reference was made to the Earth Summit of Rio de Janeiro in 1992, to the World Summit on Sustainable Development held in Johannesburg in 2002, and to other global initiatives. The speakers expressed appreciation to the Government of Senegal for the hosting of the workshop, and to IDEP for the logistics put at the disposal of the workshop. They also expressed the hope that the opportunity of the workshop will be used to initiate an appropriate network of stakeholders in environment statistics at national and regional levels.

Agenda

8. The following agenda was adopted:
1. The need for environmental statistics and indicators
 2. Environmental statistics and indicators: concepts and methods
 3. International and regional data sources for environmental indicators
 4. Selection and use of indicators
 5. Statistics on water: resources and use
 6. Statistics on water: treatment and quality
 7. Data availability and collection for the UNSD/UNEP Questionnaire: water section
 8. Statistics on air emissions and air quality
 9. Statistics on waste
 10. Use of household surveys and/or censuses as data collection instruments for environment statistics
 11. Statistics on land use
 12. Statistics on land degradation
 13. Application of GIS and remote sensing to environment statistics – case study of the LADA project in Senegal
 14. Data availability and collection for the UNSD/UNEP Questionnaire: land section
 15. Institutionalization of environment statistics
 16. Dissemination of environment statistics
 17. Towards a regional programme of environment statistics
 18. Discussion and adoption of conclusions and recommendations

19. Closing session

Deliberations

Item 1: The need for environmental statistics and indicators

9. The presentations were made by ECOWAS, UNSD and UNEP, respectively, on the situation of environment statistics in ECOWAS region, the international needs, the activities of UNSD in environment statistics and the AEIN/GEO/AEO initiative.

10. The discussions focused on:

- the need to coordinate activities at national, regional and international level
- the necessity to target the relevant institutions and agencies in data collection
- the need for political commitment and motivation
- the inadequacy of human resources for environmental data collection and for the development of environmental statistics, and the need to sensitize policy makers for the need of reliable environmental information
- the difficulties encountered at regional level to collect national environment statistics and the need for cooperation with relevant national and regional agencies
- the need to popularise the UNSD questionnaire
- the importance of definitions, concepts and methodologies supporting the development of environment statistics and the need to harmonise them
- the need for a suitable institutional mechanism for validation of information on environment
- the need to strengthen capacities at national, sub-regional and regional level.

Item 2: Environmental statistics and indicators: concepts and methods

11. UNSD made three presentations on the frameworks for environmental statistics and indicators, the development of environmental indicators and the data linkages to environmental accounting.

12. During the ensuing discussions, participants recognised the need to introduce in university curricula issues relating to environment statistics, environmental assessment and accounting.

Item 3: International and regional data sources for environmental indicators

13. UNSD presented a set of international and regional sources of data on environment statistics.

14. The discussions highlighted the necessity to ensure continuity of statistical activities at national level, as well as the need to involve all stakeholders in the preparation in activities relating to environment statistics. The need to get individuals,

national statistics services and relevant agencies acquainted with existing data sources on environment statistics was also recognized.

Item 4: Selection and use of indicators

15. In group sessions, participants assessed the indicators proposed by UNEP on land use, fresh water resources, abstraction and use, waste and air, especially in view of their specificity, measurability, accuracy, reliability and timeliness.

16. The discussions revealed the need to clarify further the concepts of some indicators and to adapt them to the specific national level environmental priority issues. Participants also emphasized the need for better coordination of requests from international and regional organizations with a view to reducing the work burden of those in charge of completing the questionnaires. The workshop further emphasized the need for harmonization of definitions, classifications and terminology of indicators in the region to be in line with those in the UNSD/UNEP questionnaire.

Item 5: Statistics on water: resources and use

17. After an introduction by UNSD on environmental and policy issues and indicators for water, the UNSD consultant from Jordan, made a presentation on the scope of statistics on water resources, abstraction and use, of concepts, methods and definitions of tables W1-W3 of the UNSD questionnaire on water statistics, and of potential data sources (measuring of surface water, estimating available ground water, evapotranspiration and dependable water resources, measuring water abstraction by agriculture, industries, households, estimating water use and water losses, etc).

18. The participants expressed concerns about the capacities of countries of the region to implement the techniques and the methodologies needed for the calculation of the different variables, and called for the strengthening of their capacities in that regard and the establishment of a network of specialists and statisticians. Existing documentation on the techniques involved were also indicated (Eurostat manual, UNICEF documentation, etc.). The participants were informed that a manual is being prepared by UNSD to throw more light on the variables and to explain how to complete the questionnaires. The necessity to organize further workshops for other officials involved in the computation of the different indicators was recognized.

Item 6: Statistics on water: treatment and quality

19. The UNSD consultant from Jordan made a presentation of tables W4-W9 of the UNSD questionnaire on water statistics, and explained data sources for waste water and water treatment (waste water treatment facilities, municipalities, industries), and data sources for water quality statistics (how to do reliable measurements).

20. It was noted that the techniques of measurement may differ from one country to another, and that they are different from the ordinary statistical methods and techniques.

It was also noted that in most cases, countries should consider only the indicators which are relevant for them and which could be measured more efficiently vis-à-vis the capacities they have in place.

Item 7: Data availability and collection for the UNSD/UNEP Questionnaire: water section

21. In group sessions, participants discussed the water questionnaire proposed by UNSD. Participants were requested to assess the extent to which the UNSD Questionnaire reflects UNEP/NEPAD/AEO-2 lead indicators, data availability for the variables considered, sources of data at national level and their accessibility, other possible variables to be treated in the water section of the questionnaire, problems posed by the water section (units of measurement, national definitions vs. international definitions, national classifications vs. international classifications).

22. The groups noted differences between national and international concepts and definitions, conversion problems between units used by countries and international units (especially for precipitation), a diversity of sources (administrations, research, agriculture, private sector (very often with limited accessibility), the need for networking between national statistics services and agencies responsible for the generation of data on water.

Item 8: Statistics on air emissions and air quality

23. UNSD presented international conventions on air emissions, their objectives and relevant documentation. The Benin Environmental Agency (“Agence Ecologique du Bénin”) presented their experience on communication and calculation of air emissions.

24. The discussions focused on possible estimation of country specific coefficients, the need to check national data against those obtained in neighbouring countries or those with similar socio-economic conditions, the need to compile and publish meta data on environmental indicators, the need to improve measurement conditions and tools, the need for national agencies in charge of the generation and collection of information on environment to sensitize the governments for adequate and sustainable funding of environmental data generation and dissemination.

Item 9: Statistics on waste

25. UNSD presented the questionnaire section on waste, its concepts, definitions and classifications (the waste cycle from generation to disposal or recovery, types of waste, types of waste treatment, waste producers according to ISIC, the link to the Basel convention), and potential data sources (national registers, municipalities, waste treatment facilities, waste collectors, industries)

26. The discussions focused on the need to adapt waste statistics to national legislations and practices in waste management, the need to identify all national sources

of waste, the need to define indicators to capture the impact of waste (on health) for policy use, an improved way to put waste generation in relation to the economic activities (by using for example the GDP created by the polluting industry as a reference).

Item 10: Use of household surveys and/or censuses as data collection instruments for environment statistics

27. UNSD presented a communication of the use of household surveys and censuses as data collection instruments for environment statistics.

28. During the entailing debates, participants discussed the institutional arrangements in place at national level, modules to be added to the traditional frameworks of household and industrial surveys, and to censuses in order to include questions on or related to the environment.

Item 11: Statistics on land use

29. Two presentations were made respectively by UNSD on the land use statistics of the questionnaire and by FAO on environmental and policy issues, sources of land use and land cover statistics (institutional aspect, concepts, methods and classifications, agro-maps initiative, linkages to other areas of statistics and data collection).

30. Debates focused on the need for coordination at national level and clear definitions of responsibilities, the need for databases on land use and a mechanism of sharing information across countries, and the necessity for countries to improve the different classifications in use.

Item 12: Statistics on land degradation

31. UNSD presented the land degradation section of the UNSD/UNEP questionnaire. FAO made a presentation on the same topic highlighting concepts, data collection, and presentation, as well as sources of land degradation statistics (institutional aspect, concepts, methods and classifications, and the LADA project).

32. Discussions focused on country ownership of the LADA project framework, the necessity to focus on its sustainability and replicability, and the possibility of funding by participating countries.

Item 13: Application of GIS and remote sensing to environment statistics – case study of the LADA project in Senegal

33. “Centre de Suivi Ecologique” of Senegal presented the LADA project in Senegal, Senegal being one of the pilot countries where the LADA project is being implemented.

Discussions focused on the need to clarify the terminology used to facilitate the replication of the project in other countries, the determinants of degradation, the possible

future use of the results of LADA to complete the UNSD questionnaire, the sensitive character of some indicators which limits their accessibility, the exact calculation of land degradation.

Item 14: data availability and collection for the UNSD/UNEP Questionnaire: land section

34. In group sessions, participants assessed the variables proposed by UNSD on land use and land degradation. Participants were requested to assess data availability on the variables considered, sources of data at national level and their accessibility, other possible variables to be treated in the land section of the questionnaire, problems posed by the section (units of measurement, national definitions vs. international definitions, national classifications vs. international classifications).

35. Participants proposed to add questions on national reserves, protected areas, and on coastal erosion. Discussions also focused on the need for clear definitions, classifications, sharing of information, the need for cooperation between agencies at national level, and capacity-building in data collection.

Item 15: Institutionalization of environment statistics

36. The UNSD consultant presented a paper on the institutionalization of environment statistics, using the case of Jordan. Particular emphasis was laid on the need for cooperation and coordination at the national and regional levels, with the establishment of a legal framework as a first step, as well as on the necessity to share responsibilities. Nigeria also made a brief presentation on its experience.

37. Discussions focused on the need to convince governments to adequately support national capacity-building initiatives, country experiences in institutionalizing environment statistics, and on the role of national statistics services and agencies in charge of environment.

Item 16: Dissemination of environment statistics

38. Two presentations were made by UNECA and UNSD on publication media and on the use of internet in particular. Emphasis was also laid on quality assessment of data published and on the Aarhus Convention on rights to access information.

39. Participants discussed issues relating to internet maintenance and update of sites, the importance of coordination and data dissemination, and the need for a change of mentality in the organization towards information systems.

Item 17 and closing session: Recommendations from the ECOWAS workshop on environment statistics

40. Participants discussed possibilities to move toward a regional program on environment statistics and agreed on the following recommendations:

- (i). The participants expressed concern about environmental degradation in the ECOWAS region, especially in the areas of land, forest, biodiversity, water availability and quality, coastal and marine environment, waste management and air quality. They believe that good environmental data is a prerequisite for sound management of their country's environment, thereby ensuring sustainable development and efficient use of scarce natural resources. The participants consider that the workshop was an important step for the improvement of environmental information and statistics in the ECOWAS countries.
- (ii). The participants believe that the UNSD/UNEP questionnaire in the areas of water, waste, air and land is the appropriate tool to define the data needed and should be used to collect data available on environment in the ECOWAS region. This data should be included in an environment statistics compendium in 2006, and also to support environmental assessment and reporting.
- (iii). Countries are urged to create and/or strengthen adequate mechanisms and responsibilities for the collection of environmental data, accompanied with legal backing, and make sure that existing environmental data is made available to all parties concerned. Strengthening of environment statistics will be needed in many countries.
- (iv). However, the participants believe that the actions necessary to obtain the data cannot be initiated through a single workshop. Considerable efforts will be needed to create the necessary capacity. Support from international organizations and donors is needed for further capacity building, support for pilot data collection and for technical equipment. Countries need to make human and financial resources available on a long-term basis.
- (v). The participants suggest that a strategic framework is established and approved by the ECOWAS countries, the aim of which is to establish a sustainable institutional framework and the necessary competence to establish regular and reliable information on the environment. The framework should be complemented by an action plan comprising the main activities for the next 4-5 years.

41. Results of the action plan should include:

- Appropriate national coordination mechanisms between the Environment Ministries, statistical offices and other relevant institutions in all ECOWAS countries;
- A regular completion of the biennial UNSD/UNEP questionnaire by all countries, according to data available;
- A regular publication of a Compendium on Environment Statistics in ECOWAS countries, under the responsibility of ECOWAS and UNSD, and

in collaboration with UNEP, UNECA, FAO, ADB, AFRISTAT, and other international organizations concerned;

- Input into environmental assessment and reporting at national, sub-regional (ECOWAS Environment Outlook Report) and regional levels (Africa Environment Outlook, AEO) ;
- Increased capacity in order to improve data availability and quality in the most critical environmental areas.

42. Substantial financial resources will be needed to support this action plan. ECOWAS in collaboration with UNSD and UNEP is asked to propose a project framework for resource mobilization. Experiences from earlier or ongoing projects need to be taken into account.

(vi). The participants agree on the following short-term actions, independently from the acceptance or not of the above-mentioned framework strategy:

- Each country will nominate a national focal point for the UNSD/UNEP questionnaire on environment statistics, fill the 2004 questionnaire and send it to UNSD before end of June 2005. Those countries which have already sent their contributions will review them critically and send complementary information for the same date;
- UNEP will harmonise the regional and sub-regional indicators to be in line with the variables and the terminology of the UNSD/UNEP questionnaire whenever possible;
- UNSD will review the country papers and produce a summary document on the situation of environment statistics in the ECOWAS countries, in close collaboration with the respective countries;
- UNSD will make available all presentations and country papers on its web site;
- ECOWAS and UNSD will examine the possibility to publish a compendium of environment statistics in 2006;
- For the next review of the questionnaire, UNSD will consider the changes proposed during the workshop

(vii). The participants also urge international organizations such as UNSD, UNEP, UNDP, ADB, FAO, etc., to agree on a full harmonization and coordination of the information requests to countries.

(viii). The workshop calls for the initiative to be extended to cover all of Africa with the support of UNSD, UNEP, UNECA, FAO, ADB, AFRISTAT and other development partners.

43. The workshop was declared close by Mr Babakar FALL, Deputy Director, statistics service of Senegal, on behalf of the Government.

VOTE OF THANKS

The participants of Workshop on Environment Statistics organised within the framework of the UN-ECOWAS statistical assistance, holding their session in Dakar from 28 February to 4 March 2005, express their profound gratitude to **His Excellency Abdoulaye WADE**, President of the Republic of Senegal, the government and people of Senegal for the warm hospitality extended to all delegations and the excellent facilities put at their disposal to ensure the success of their meeting.

DONE IN DAKAR THIS 4th DAY OF MARCH 2005

THE MEETING

Annex 1:

LIST OF PARTICIPANTS

BENIN	
<p>Mr. Aristide Fiacre Djossou Statistician Social Statistics Department Institut National de la Statistique et de l'Analyse Economique Ministere du Plan et de la Statistique B. P. 323 Cotonou, Benin Fax: +229 30 82 44 Tel: + 229 07 83 37 Email: aristid_djos@yahoo.fr</p>	<p>Dr. Maman-Sani Issa Chief of the Department Environmental Information and Monitoring System (EIMS) The Benin Environmental Agency 04 BP 1501 or 03 BP 4387 Jericho Cotonou, Benin Tél: + 229 93 31 09, 87 86 76 or 30 45 56 Email: missa@abe.bj, issa37@hotmail.com, abepge@intnet.bj</p>
BURKINA FASO	
<p>Mr. Jean Edouard Odilon Doamba Chargé d'Etudes au Service des Statistiques Agropastorales, de l'Environnement et des Services Institut National de la Statistique et de la Demographie, Ministère de l'Economie et du Développement B. P. 374 Ouagadougou 01, Burkina Faso Fax: +226 50 32 61 59 Tel: +226 50 32 44 31, +226 70 72 00 66 Email: doambafr@yahoo.fr</p>	<p>Mr. Jean Abdias Compaoré Programme National de Gestion de l'Information sur l Milieu (PNGIM), S/C CONEDD 01 BP 6486 Ouagadougou, Burkina Faso Fax: + 226 50 31 64 91 Tel: + 226 50 30 73 43 Email: Compaore00891@alumni.itc.nl, abdiasj@netscape.net</p>
CAPE VERDE	
<p>Ms. Olga Maria Afonseca Cruz Responsable des statistiques d'entreprises et des services Institut National de la Statistique Av. Amilcar Cabral, Praia, C.P. 116 Cape Verde Fax: +238 261 16 56 Tel: +238 261 38 27, +238 261 39 60 Email: olgac@ine.gov.cv, olgacruz61@hotmail.com</p>	<p>Mrs. Maria da Cruz Soares Direcção Geral Do Ambiente Ministério Ambiente, Agricultura e Pescas C.P.: 115 – Praia, Cape Verde Fax: + 238 2617511 Tel: + 238 2618984 Email: sepa@civtelecom.cv</p>
CÔTE D'IVOIRE	
<p>Ms. Josephine Aya Gnamien Chef de Service Institut National de la Statistique Ministere du Plan et de Développement B.P.V. 55 Abidjan 01, Côte d'Ivoire Tel: +225 2022 8090, +225 0762 5800 Email: jgnamien@hotmail.com</p>	<p>Mr. Etien N'Dah <i>Agence Nationale de l'Environnement (ANDE)</i> 08 BP 09 Abidjan 08 Riviera III, Rue 945 Bis, Côte d'Ivoire Fax: + 225 22 47 06 77 Tel: + 225 22 47 08 76/65 Email: etiendah@yahoo.fr</p>
THE GAMBIA	

<p>Mr. Edrissa Ceesay Senior Statistician Central Statistics Department, Ministry of Finance Kanifing, The Gambia Fax: +220 437 7843 Tel: +220 779 5921, +220 437 7844 Email: idi_csay@yahoo.co.uk</p>	<p>Mr. Kebba Dampha Environmental Information Systems and GIS officer National Environment Agency 5 Fitzgerald Street, PMB 48, Banjul, The Gambia Fax: + 220 4229701 Tel: + 220 4224867, 4224869, 4228056, 9914059 Email: nea@gamtel.gm, damphak2002@yahoo.co.uk</p>
GHANA	
<p>Mrs. Emma Sepah Principal Statistician Head, Health, Nutrition and Environment Statistics Section Ghana Statistical Service P. O. Box 1098 Accra, Ghana Fax: +233 21 664304 Tel: +233 21 682688 Email: esepah@yahoo.com</p>	<p>Mr. Yaw Amoyaw-Osei Principal Programme Officer and head of the Environmental Information and Data Management Department Environmental Protection Agency P.O. Box M 326 Ministries Post Office Accra, Ghana Fax: + 233 0 21 66 26 90 Tel: + 233 0 21 66 46 97/ 8 Email: yosei@epaghana.org, support@epaghana.org yawamoyaw@hotmail.com</p>
GUINEA	
<p>Mr. Mandjou Sylla Chef de Division, Statistiques Générales Direction National de la Statistique, Ministère du Plan B.P. 221 Conakry, Guinea Tel: +224 414567, +224 58 06 20 Fax: +224 413059 Email: mandjherico2002@yahoo.fr, dnstat@biasy.net</p>	<p>Mr. Sédibinet Sidibe Directeur du Centre National d'Observation et de Suivi Environnemental (CNOSE) Ministère de l'Environnement BP 761 Conakry, Guinea Tél: + 224 582016 Email: sidibesedibinet@yahoo.fr</p>
GUINEA-BISSAU	
<p>Mr. Roberto Vieira Directeur de Services de Statistique Economique Instituto Nacional de Estatistica e Censos C.P.-6 Bissau, Guinea-Bissau Fax: +245 20 14 65, +245 20 51 56 Tel: +245 20 54 57, +245 722 44 44 Email: babo92@hotmail.com, cameco63@hotmail.com</p>	<p>Mr. Laurentino Rufino Da Cunha Directeur de Services de l'Environnement Urbaine- Direction General de l'Environnement Ministerio da Energia e dos Recursos Naturais Praca Che Guevara, Caixa Postal-399, Guinea-Bissau Fax: + 245 20 49 23 Tel: + 245 20 64 57, mobil: + 245 7225644 Email: larcunha@hotmail.com</p>
LIBERIA	
<p>Mr. Francis F. Wreh Asst. Minister for Population and Social Statistics Ministry of Planning and Economic Affairs Randall Street, P.O. Box 9016 Monrovia, Liberia Tel: +231 656 0435 Email: ffwreh25@yahoo.com</p>	<p>Mr. James Emmons Coleman Environment Protection Agency P O Box 4024, 4th Street Sinkor Monrovia, Liberia Fax: + c/o 31205407127 (UNDP-SAT Line) Tel: + 231 6 558 571 Email: jecoleman2@yahoo.com</p>
MALI	

<p>Mr. Mahady Mamadou Fofana Chef de Division Méthodes et Analyse Statistique Direction Nationale de la Statistique et de l'Informatique B.P. 12, Bamako, Mali Fax: +223 222 71 45 Tel: +223 222 24 55, +223 222 48 73 Email: madyfofana2002@yahoo.fr</p>	<p>Mr. Amidou Traoré Secrétariat Technique Permanent du Cadre Institutionnel de la Gestion des Questions Environnementales (STP/CIGQE) B.P. 2357 Bamako, Mali Fax : + 223 23 58 67 Tel: + 223 23 10 74/23 34 63; cell 678 44 07/ 618 62 Email: amidoutraore22@hotmail.com, stp@timbagga.com.ml, amtraore22@yahoo.fr</p>
<p>MAURITANIA</p>	
<p>Mr. Maloum Dine Ould Maouloud Directeur-Adjoint de l'Environnement Direction de l'Environnement (DENU) Ministère du Développement Rural et de l'Environnement BP 170, Nouakchott, Mauritania Fax: + 222 529 25 57 Tel: + 222 529 01 15 Email: maloumdine@yahoo.fr, ngara-mauritanie@toptechnology.mr</p>	
<p>NIGER</p>	
<p>Mr. Boubacar Alou Chef Division Statistiques Economiques et Sociales Ministère des Finances et de l'Economie B. P. 862 Niamey, Niger Fax: +227 735 984 Tel: +227 723 560, +227 203257, cell: 00227800531 Email: alou_bou@yahoo.fr</p>	<p>Mrs. Zalia Boubacar Conseillère au Secrétariat Exécutif Conseil National de l'Environnement pour un Développement Durable (CNEDD) B.P. 10 193 Niamey, Niger Fax: + 227 72 29 81 Tel: + 227 72 25 59 / 73 76 65, cell: + 227 933779 Email: biocnedd@intnet.ne, zboubacar2001@yahoo.f</p>
<p>NIGERIA</p>	
<p>Mr. Solomon Olaye Assistant Director Federal Office of Statistics 36/38 Broad Street, PMB 12528 Lagos, Nigeria Fax: +234 1 263-5077 Tel: +0803 717 7289 Email: FOS_NAD@yahoo.co.uk</p>	<p>Mr. Mudathir Adewunmi Adeyinka Department of Environmental Assessment Federal Ministry of Environment P.M.B. 3150, Surulere, Lagos, Nigeria Tel/Fax: + 234 01 5234014 / 5234119 Email: wunmimadeyinka@yahoo.com</p>
<p>Mr. Philip Olatunde Bankole Assistant Director, Statistics and Information Management Federal Ministry of Environment, Dept. of Planning, Research and Statistics Environment House, Independence Avenue P. M. B. 468, Central Area Garki, Abuja , Nigeria Tel/Fax: + 234 9 5234014 / 5234119 Cell: + 234 803 7260542 Email: philip_olab@yahoo.com</p>	
<p>SENEGAL</p>	

<p>Mr. Babakar Fall, Chef de la Division des Statistiques Economiques et de la Comptabilité Nationale, Direction de la Prévision et de la Statistique, Ministère de l'Economie et des Finances, Dakar, Sénégal Tel: + 221 554 32 87 Email: babakarfall@yahoo.fr</p>	<p>Mr. El Hadji Malick Diame Conseiller Technique, Direction de la Prévision et de la Statistique, Ministère de l'Economie et des Finances, Dakar, Sénégal Tel: + 221 554 32 87 Email: diamemalick@yahoo.fr</p>
<p>Mr. Amadou Moctar Dieye Centre de Suivi Ecologique (CSE) BP 15532 Dakar, Sénégal Fax: + 221 825 81 68 Tel: + 221 825 80 66 / 67 Email: dieye@cse.sn</p>	<p>Madame Dia Mam Siga Ndiaye Direction de la Prévision et de la Statistique Sénégal Dakar, Sénégal Tel : + 221 8240301 / 8250050 Email: mamsiga@yahoo.fr</p>
<p>Madame Marième Diallo Seck Centre de Suivi Ecologique (CSE) BP 15532 Dakar, Sénégal Fax: + 221 825 81 68 Tel: + 221 825 80 66 / 67 Email: marieme@cse.sn</p>	<p>Dr. Jacques André Ndione Centre de Suivi Ecologique (CSE) BP 15532 Dakar, Sénégal Fax: + 221 825 81 68 Tel: + 221 825 80 66 / 67 Email: jacques-andre.ndione@cse.sn</p>
SIERRA LEONE	
<p>Mr. Eugene Sawyerr Statistician Statistics Sierra Leone Council A. J. Momoh Street, Tower Hill, PMB 595 Freetown, Sierra Leone Fax +232 22 223897 Tel:+232 22 223287, +232 76 695245 Email: Sawyerr225@yahoo.co.uk</p>	<p>Mr. Edwin Baimba Environment Officer Ministry of Lands, Country Planning and the Environment 3rd Floor, Youyi Building Freetown, Sierra Leone Fax: + 232 22 235055 Tel: + 232 22 240367, Cell: + 232 76 653065 Email: ebaimba@yahoo.com</p>
TOGO	
<p>Mr. Totomba Bassanté BoukpeSSI Chef de Division des Statistiques de l'Environnement Direction Général de la Statistique et de la Comptabilité Nationale B.P. 118 Lome, Togo Fax: + 228 221 27 75 Tel: + 228 221 22 87, +228 221 62 24 Email: boukpeSS@yahoo.fr</p>	<p>Mr. Issobou Adjei-Toure Directeur Prefectoral de l'Environnement et des Ressources Forestieres de Zio B.P. 4825 Lome, Togo Tel: + 228 2212897, Cell: + 228 9024843/ 228 33041. Email: toure63@yahoo.fr, atayi1@hotmail.com</p>
ECOWAS	

Mr. Akou Adjogou
Chargé de Programme Principal, Statistique
ECOWAS Secretariat
CEDEAO,60, Yakubu Gowon Crescent, Asokoro District, PMB 401
Abuja, Nigeria
Fax: +234-9 314 96 84
Tel: +234-9 314 96 83, +234-803 332 5589
Email: adjogouakou@hotmail.com, aadjogou@ecowas.int, gaspard_adjogou@yahoo.fr

ECOWAS

Mr. Tinfissi Joseph Ilboudo
Chargé de Programme, Statistique
ECOWAS Secretariat
CEDEAO,60, Yakubu Gowon Crescent, Asokoro District, PMB 401
Abuja, Nigeria
Fax: +234-9 314 96 84
Tel: +234-9 314 96 83, +234 804 337 2341
Email: ilboudo_joseph@yahoo.fr, jilboudo@ecowas.int

UNECA

Mr. Bakary Dosso
United Nations Economic Commission for Africa
P.O. Box 3001, Addis Ababa, Ethiopia
Fax: +251 1 51 05 12
Tel: +251 1 44 36 71
Email: bdosso@uneca.org, dossob@un.org

ADB

Dr. Aimée Bella
Senior Environmentalist
Sustainable Development and Poverty Reduction Unit, African Development Bank
13 Avenue de Ghana - Rue Pierre Coubertin Hedi, Nouria, B.P. 323 - 1002 Tunis Belvedere, Tunisia
Fax: + 216 71 103 775
Tel: + 216 71 351 933
Email: a.bella@afdb.org

AFRISTAT

Monsieur Eloi Quedraogo
Expert en statistiques agricoles
AFRISTAT
B.P. E 1600, Bamako, Mali
Fax: + 223 221 11 40
Tel: + 223 221 55 00
Email: Eloi.Quedraogo@afristat.org

FAO

Dr. Hubert George
Technical Officer
Land and Water Development Division
Food and Agriculture Organization of the United Nations
Room B-704, Viale delle Terme de Caracalla – 00100 Rome, Italy
Fax: + 39 065 705 62 75
Tel: + 39 065 705 62 34
Email: Hubert.George@fao.org

UNSD
<p>Ms. Reena Shah Statistician Environment Statistics Section United Nations Statistics Division Two UN Plaza, Room DC2-1412, New York, NY 10017, USA Fax: + 1 212 963 0623 Tel: + 1 212 963 4586 Email: shahr@un.org</p>
UNSD
<p>Mr. Ulrich M. Wieland Chief Environment Statistics Section United Nations Statistics Division Two UN Plaza, Room DC2-1416, New York, NY 10017, USA Fax: + 1 212 963 0623 Tel: + 1 917 367 4201 Email: wieland@un.org</p>
CONSULTANT
<p>Mr. Khamis Abdel Raham Hussein Raddad Director, Environment and Agriculture Directorate Department of Statistics P O Box 02015, Amman, Jordan Fax: + 962 6 530 07 10 Tel: + 962 6 530 07 00 Email: khamisrd@hotmail.com</p>
UNEP
<p>Mr. Christopher Ambala Associate Programme Officer Division of Early Warning and Assessment United Nations Environment Programme P.O. Box 30552 Nairobi, Kenya Fax: + 254 20 624309 Tel: + 254 20 623818 Email: chris.ambala@unep.org</p>
NESDA
<p>Ms. Bora Masumbuko Project Officer Network for Environment and Sustainable Development in Africa (NESDA) Avenue Joseph Anoma, Immeuble, BAD 24 BP 95 Abidjan 24, Guichet Annexe, Abidjan, Côte d'Ivoire Fax: + 225 20 205 922 Tel: + 225 20 205831 Email: b.masumbuko@afdb.org</p>
SARDC

Mr. Stanley Mubako
Southern African Research and Documentation Centre
Musokotwane Environment Resource Centre for Southern Africa (SARDC IMERCSA)
15 Downie Avenue, Belgravia
P.O. Box 5690, Harare, Zimbabwe
Fax: + 263 4 791271
Tel: + 263 4 791141
E-mail: smubako@sardc.net

IOC

Mr. Sachooda Ragoonaden
Consultant
Commission de l'Océan Indien
B.P. 7, Q4, Avenue Sir Guy Forget, Quatre Bornes, Mauritius
Fax: + 230 4546167
Tel: + 230 4650116
Email: rajouma@yahoo.com

NEMA

Mr. Joel Arumadri Alimudoa
Environment Information Systems Specialist
National Environment Management Authority (NEMA)
Policy Planning & Information Department
P.O. Box 22255, Kampala, Uganda
Fax: + 256 41 257 521
Tel: + 256 41 251 064/5/8, Cell: + 256 77 426 480
Email: jarumadri@nemaug.org

ADIE

Mr. Charles-Elie Doumambila
Technical Director
Agence Internationale pour le Développement
de l'Information Environnementale
B.P.4080, Libreville, Gabon
Fax: + 241 241-77 42 61
Tel: + 241 89 54 43
E-mail: doumambilac@yahoo.fr

UNDP Resident Representative - SENEGAL

Mr. Albéric Kacou
UN Resident Coordinator & UNDP Resident Representative
PNUD-SENEGAL
B.P. 154
Immeuble Fayçal, 19 Rue Parchappe
Dakar - Sénégal
Fax: + 221 823 55 00
Tél: + 221 839 90 50
Email: alberic.kacou@undp.org

Annex 2 :

Workshop on Environment Statistics

(Dakar, 28 February to 4 March 2005)

Work Schedule

Monday, 28 February

8.30-9:00 Registration

9:00-10:30	Opening session
-------------------	------------------------

- | | |
|------------|---|
| 9:00-9:10 | - Welcome address (Government of Senegal) |
| 9:10-9:20 | - UNDP |
| 9:20-9:30 | - UNSD |
| 9:30-9:40 | - UNEP |
| 9:40-9:50 | - ECOWAS |
| 9:50-10:00 | - Adoption of agenda and work schedule |

10:00-10:30 *Coffee Break*

10:30-12:30	Session 1: The need for environmental statistics and indicators
--------------------	--

- | | |
|-------------|---|
| 10:30-10:45 | - Regional situation (ECOWAS) |
| 10:45-11:00 | - International needs (UNSD) |
| 11:15-11:30 | - Activities in environment statistics at UNSD (UNSD) |
| 11:30-12:30 | - AEIN/GEO/AEO initiative (UNEP) |

12:30-2:00 *Lunch*

2:00-3:00	Session 2: Environmental statistics and indicators: concepts and methods
------------------	---

- | | |
|-----------|---|
| 2:00-2:20 | - Frameworks for environmental statistics and indicators (UNSD) |
| 2:20-2:40 | - Development of environmental indicators (UNSD) |
| 2:40-3:00 | - Data linkages to environmental accounting (UNSD) |

3:00-3:30	Session 3: International/regional data sources for environmental indicators (UNSD)
------------------	---

3:30-4:00 *Coffee Break*

4:00-5:30	Session 4: Working group session on the selection and use of indicators
------------------	--

Tuesday, 1 March

9:00-11:00	Session 5: Statistics on water: resources and use (Khamis Raddad)
-------------------	--

- | | |
|-------------|--|
| 9:00-9:15 | - Setting the scope: environmental and policy issues; indicators on water; the UNSD manual on water statistics |
| 9:15-10:00 | - Water resources: Sources of water resources and use statistics: measuring of surface water; estimating available ground water; evapotranspiration and dependable water resources; the UNSD questionnaire on water statistics, table W1 |
| 10:00-11:00 | - Measuring water abstraction by agriculture, industries, households, estimating water use and water losses; concepts, methods and classifications; the UNSD questionnaire on water statistics, tables W2-W4A |

11:00-11:30 *Coffee Break*

11:30-1:00	Session 6: Statistics on water: treatment and quality (Khamis Raddad)
-------------------	--

- Sources of water treatment statistics: waste water treatment facilities; municipalities; industries; sources of water quality statistics: how to do reliable measurement; concepts, methods and classifications; the UNSD questionnaire on water statistics, tables W4B-W9

1:00-2:30 *Lunch*

2:30-5:00	Session 7: Working group session on data availability and collection for the UNSD/UNEP Questionnaire: water section
------------------	--

- | | |
|-----------|------------------------|
| 2:30-3:30 | - Discussion in groups |
|-----------|------------------------|

3:30-4:00 *Coffee Break*

4:00-5:00 - Presentation to plenary session

Wednesday, 2 March

9:00-10:00	Session 8: Statistics on air emissions and air quality
-------------------	---

9:00-9:30 - Statistics on air emissions: environmental policy issues of air emissions; climate change, health, acidity, ozone layer; international conventions (UNFCCC and CLRTAP) and objectives; concepts, methods and classifications; the UNSD questionnaire on air statistics (UNSD)

9:30-10:00 - Calculating air emissions and measuring air quality (Benin Environmental Agency)

10:00-10:30 *Coffee Break*

10:30-11:30	Session 9: Statistics on waste (UNSD)
--------------------	--

10:30-11:30 - Environmental policy issues of waste: toxicity; resource use; national and international waste management policies;
- Sources of waste statistics: national registers; municipalities; waste treatment facilities; waste collectors; industries; concepts, methods and classifications: the waste cycle from generation to disposal or recovery; types of waste; types of waste treatment; waste producers (ISIC); the UNSD questionnaire and the UNSD manual on waste statistics

11:30-1:00	Session 10: The use of surveys and/or censuses as data collection instruments for environment statistics (UNSD)
-------------------	--

1:00-2:30 *Lunch*

Thursday, 3 March

9:00-10:30	Session 11: Statistics on land use
-------------------	---

- UNSD questionnaire on land use statistics (UNSD)

- Environmental and policy issues; sources of land use and land cover statistics: the institutional aspect; concepts, methods and classifications; the Agro-maps initiative; linkages to other areas of statistics and data collection (FAO)

10:30-11:00 *Coffee Break*

11:00-12:30	Session 12: Statistics on land degradation
--------------------	---

- UNSD questionnaire on land degradation statistics (UNSD)
- Land degradation – concepts, data collection, and presentation; sources of land degradation statistics: the institutional aspect; concepts, methods and classifications; the LADA project (FAO)

12:30-2:00 *Lunch*

2:00-3:00	Session 13: Application of GIS and remote sensing to environment statistics – case study of the LADA project in Senegal (Centre de Suivi Ecologique)
------------------	---

3:00-5:00	Session 14: Working group session on data availability and collection for the UNSD/UNEP Questionnaire: land section
------------------	--

3:00-4:00 - Discussion in groups

4:00-4:30 *Coffee Break*

4:30-5:00 - Presentation to plenary session

Friday, 4 March

9:00-10:00	Session 15: Institutionalization of environment statistics (Khamis Raddad)
-------------------	---

10:00-10:30	Session 16: Dissemination of environment statistics (UNSD, ECA)
--------------------	--

10:30-11:00 *Coffee Break*

11:00-12:30	Session 17: Towards a regional programme of environment statistics
--------------------	---

- 11:00-12:00 - Discussion in groups
- 12:00-12:30 - Presentation to plenary session

12:30-2:30 *Lunch*

2:30-4:30	Closing session: discussion and adoption of conclusions and recommendations (UNSD/UNEP/ECOWAS)
------------------	---