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ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA

## **Report**

### **WORKSHOP ON ENVIRONMENT STATISTICS IN THE COUNTRIES OF THE ESCWA REGION**

DAMASCUS, 4-8 APRIL 2004

**Economic and Social Commission for Western Asia  
and  
UN DESA Statistics Division**

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# **WORKSHOP ON ENVIRONMENT STATISTICS IN THE COUNTRIES OF THE ESCWA REGION**

(SYRIAN ARAB REPUBLIC, 4-8 APRIL 2004)

## ***REPORT***

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

1. Strengthening statistical capacity in the Economic and Social Commission for Western Asia (ESCWA) region is a project executed by the UN DESA Statistics Division (UNSD) in cooperation with ESCWA Secretariat. It aims to strengthen national statistical systems in the countries of the ESCWA region and the inter-regional cooperation among these systems.
2. Within the framework of the capacity building project in statistics in the ESCWA countries, UNSD co-organised with ESCWA and United Nations Environment Program-Regional Office for West Asia (UNEP-ROWA) the Workshop on Environment Statistics in the Countries of the ESCWA Region (the workshop).
3. The objectives of the workshop were:
  - To train representatives from National Statistical Offices and Environment Ministries in classification, methodology, data treatment and dissemination, as well as in filling the Questionnaire, with its four sections on water, air, land and waste.
  - To discuss the problems that ESCWA countries face in the field of environment statistics.
  - To present recommendations to improve environment statistics in the ESCWA region and strengthen the collaboration between statistics and environment offices.

### **Organisation of the Workshop**

4. The Workshop on Environment Statistics in the Countries of the ESCWA Region took place in Damascus, Syria from 4 to 8 April, 2004. The workshop was co-organized by UNSD, ESCWA and UNEP-ROWA and hosted by the Central Bureau of Statistics, Syrian Arab Republic.
5. The workshop was attended by fifty one participants. Twelve of the thirteen ESCWA member countries (Bahrain, Egypt, Iraq, Jordan, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen) were represented by experts from National Statistical Offices, Ministries of Environment and/or other relevant national organisations.
6. The following international/regional organizations were also present at the workshop: the UN DESA Division for Sustainable Development (DSD), the United Nations Food and Agricultural Organisation (FAO), Plan Bleu, the Arab Centre for the Studies of Arid Zones and Dry Lands (ACSAD), and the Abu Dhabi Global Environmental Data Initiative (AGEDI).

### **Opening session**

7. Co-organizers, Ibrahim Ali, Director General of the Central Bureau of Statistics of the Syrian Arab Republic, Ulrich Wieland from UNSD, Wafa Aboul Hosn from ESCWA and Adel AbdelKader from UNEP-ROWA participated in the opening session.

## **Session I: The Need for Environment Statistics and Indicators**

Chairperson: Ulrich Wieland

8. Adel AbdelKader from UNEP-ROWA gave a briefing on the status of environmental data in the region, and gave examples of data gaps and deficiencies. He underscored the need for environmental information. He also summarized the region's needs in terms of capacity building, tools, coordination, and information dissemination. He concluded by highlighting the main programs that cover environmental data in the region.

9. Ayad Altaai presented a brief on the Abu Dhabi Global Environmental Data Initiative (AGEDI), which is a UN WSSD Type II Partnership Initiative, launched in Johannesburg in 2002. AGEDI is a collective global response designed to bridge the widening gap between, and within, developed and developing countries in terms of the quality, availability, accessibility, use, updating, and dissemination of environmental data. The Environmental Research and Wildlife Development Agency (ERWDA) is the Lead Agency, UNEP is the Primary Partner, and other partnerships are being in process.

10. Reena Shah from UN DESA DSD reviewed the uses and policy demands for indicators as key information tools for decision-making in sustainable development stemming from the United Nations Conference on Environment and Development, the Commission on Sustainable Development (CSD), and the World Summit on Sustainable Development. She focused on the CSD guidelines and methodologies for the selection of indicators and presented the core set of 58 indicators. She also presented the Millennium Development Goals (MDG) indicators as well as a comparison table between the CSD and MDG indicators, which showed a lot of compatibility.

11. Reena Shah presented four major frameworks for environmental statistics and indicators, which are the Framework for the Development of Environment Statistics (UNSD), the Pressure-state-response framework (OECD), the theme indicator framework (CSD) and the Driving force-pressure- impact- response framework (Eurostat and EEA). She concluded that they were very similar in nature and that ultimately, the choice of framework did not really affect the selection of the indicators themselves. Ulrich Wieland continued the presentation by giving a short overview on the System of Integrated Environmental and Economic Accounting (SEEA).

12. Ulrich Wieland presented the UNSD/UNEP Questionnaire 2004 on Environment Statistics (Questionnaire). He explained that the data collected by the Questionnaire will serve numerous purposes on national, regional and international levels. For example, it will give input for the GEO series, for sustainable development indicators, for regional indicators, studies or reports, and for various national purposes. It is a tool for global standardisation, and data collection manuals are in preparation in order to support data collection in countries. The countries are invited to fill in the Questionnaire as well as they can, and were requested to respect the definitions, concepts and classifications.

13. Khamis Raddad from Jordan presented the 'Assessment of the Situation of Environment Statistics in the 13 Member States of the Economic and Social Commission of Western Asia (ESCWA)' report prepared for UNSD in 2002 in preparation for this workshop. The report focuses on the insufficient resources directed to environment statistics in the region and the lack of clarity, coordination, harmonisation of methodologies and data collection, and includes conclusions and recommendations for each country.

## **Session II: Statistics on Wastes**

Chairperson: Ulrich Wieland

14. Ulrich Wieland from UNSD presented the Questionnaire's section on waste and its main concepts. He emphasized the importance of the ISIC classification for all environmental data collections related to economic activities. He discussed the link to the Basel convention on the control of trans-boundary movements of hazardous wastes and their disposal. He highlighted the main variables of the Questionnaire in order to give countries guidance on data collection and priorities.

15. Maged Ibrahim Mohamed Amer from CAPMAS presented Egypt's experiences concerning waste statistics. He focussed on solid waste management from a regional or district perspective, as well as the use of data to determine waste policy and treatment.

## **Session III: Statistics on Water: resources and use**

Chairperson: Wafa AboulHosn

16. Jonathan Handley from UNSD presented on the environmental impacts and international policy on water resources and use. He noted some environmental considerations specific to the ESCWA region and provided a brief overview of both international conventions and policy approaches.

17. Khamis Raddad from Jordan presented a paper on natural resources, conventional and non-conventional water resources, precipitation, long-term average of precipitation, ground water, surface water and evaporation. The presentation included the methodology of calculation of rainfall volume and water resources (ground water, surface water, desalinated water, treated waste water and the import and export of water). He also discussed the approach to water classification by type (fresh water, saline water, treated water ...) and gave guidelines on how to fill table W1 in the Water section of the Questionnaire.

18. Mazen Abou Abdallah from ACSAD presented different methods in applied multivariate analysis on precipitation and temperature data in the Barada and Awaj Basin. The methods presented were Principal Component Analysis, Canonical Correlation Analysis and Singular Value Decomposition. He demonstrated how the different methods explained different patterns of distribution of the precipitation patterns within the basin in question.

19. Michael Nagy from Umweltbundesamt Wien (Austrian Ministry of Environment) presented on data generation concerning water abstraction and water use, which relate to tables W2-W4A from the Questionnaire. The first part of the presentation dealt with the contents of the tables on water abstraction, water supply and waste water generation. For an illustration, water schemes and their relation to the individual tables were used. Furthermore, he highlighted some of the definitions in the Questionnaire and gave some examples regarding data flows and evaluation methodologies used in Austria.

## **Session IV: Statistics on Water: water treatment and water quality**

Chairperson: Wafa AboulHosn

20. Michael Nagy from Umweltbundesamt Wien also presented on data generation concerning waste water treatment and water quality, relating to tables W4B-W9 in the Questionnaire. This second part of the presentation dealt with data collection of waste water collection volumes, waste

water treatment volumes and waste water treatment facilities. He provided some examples of data generation and data flows in Austria. Following this, he presented the questionnaire tables on water quality. He asserted that water quality monitoring is an important part of national water management and that the data for the Questionnaire is an important by-product.

21. During the discussion on water statistics, the following issues emerged for further consideration:

- Categorisation between ground water and surface water needs to avoid duplication, with the discussion centred on natural springs and bank filtration
- The need for consistency in data reporting, with clear designation of the institution that is responsible for reporting
- Importance of grey water. The scarcity of water in the region imposes the use of grey water and the necessity to account for the grey water used and unused
- The systematic data flow and coordination among neighbouring countries. The Austrian experience was used as an example
- The problem of accounting for waste water when treatment plant capacity is insufficient and most of the water is not being treated
- Whether runoff water should be considered as waste water was discussed. It was concluded that runoff water must be considered as waste water if it is treated in waste water treatment systems
- The problem with phosphate pollution in Jordan in the Gulf of Aqaba and the difficulty of its estimation

#### **Session V: Water statistics – country experiences**

Chairperson: Wafa AboulHosn

22. The presentation by Ali Aziz from the Iraqi Ministry of Environment concentrated on the water quality of Iraq's rivers; how quality decreases from north to south and that the external inflow is already polluted. He also mentioned the outdated infrastructure leading to significant losses (about 60%), and health problems related to polluted water.

23. Hoda Hadawi from the Central Statistics Office (CSO) in Iraq continued the presentation by explaining that the quantity of environmental data is large but that it lacks harmonisation. She stated the need for collaboration with international organizations to provide a clear methodology and quality data. She emphasized the need for a comprehensive environmental survey strengthened by training to form the basis for environmental statistics.

24. Oman's presentation dealt with waste water data collection, sources of data, tabulation and processing. The participants from Oman talked about drinking water quality, monitoring, survey of wells and hydrological monitoring systems and water canals. The second part of the presentation was about environmental household surveys concerning water quality, solid waste, sewage, and sanitation.

#### **Working Group Discussions 1**

25. After the country presentations, three working groups discussed the coherence between the water section of the Questionnaire and the priority list of environmental indicators for the Arab region drafted under the auspices of UNEP ROWA. Differences in the perception of the working groups indicated that adaptations and more precise definitions, will be needed for the priority list of environmental indicators in order to assure optimal use of the UNSD/UNEP methodology.

## **Session VI: Data treatment and data dissemination**

Chairperson: Wafa AboulHosn

26. Munther Badriyahd from the Department of Statistics (DOS) in Jordan presented Jordan's experience in data base creation & management and the elements used for the establishment of the environment database. He talked about the activities of the Environment Statistics division, the indicators for which data is collected, the database methodology and the sources of data. He shared the Jordan DOS's experience in environmental data concerning the preparatory stage of data collection (including close contacts with users), the collection stage, processing stage, the preparation of a report and dissemination of results.

27. Jonathan Handley from UNSD discussed the data dissemination process. He covered the development of a dissemination policy and plan, as well as the comparison of electronic dissemination with the dissemination of printed documents. He also provided a brief overview of the Aarhus Convention and its implementation.

28. Wafa Aboul Hosn from ESCWA presented environmental data treatment with reference to the Questionnaire. She reviewed the different stages in the environmental data process from collection, to compiling, analysis and dissemination. She explained different statistical tools in Microsoft Excel, such as validation, descriptive data analysis tools and some inferential statistics tools, and made a demonstration on tables selected from the Questionnaire's water section. She finally emphasized the role of ESCWA in working closely with member countries on environmental priority issues and the need for collaboration with international organizations dealing with environment statistics.

29. Reem Fayyad from the Lebanese Ministry of Environment and Ziad Abdallah from the Central Administration for Statistics (CAS) in Lebanon presented their experience within the MedStat project. Supported by Plan Bleu, the Ministry of Environment worked closely together with the CAS to fill in the MedStat environment questionnaire and to build up a database.

30. The Palestinian presentation focused on the establishment of the Environment and Natural Resources Department within the Palestinian Central Bureau of Statistics, the use of environment statistics and data and the obstacles in data collection, such as the difficulties to get a full geographical coverage and the absence of historic data. The presentation also covered the dissemination of environment statistics data in reports, publications, internet and compact disks, and the availability of documentation and public files.

31. Major points in the discussion on issues related to data treatment and dissemination were the following:

- The conflict between statistical confidentiality and the Aarhus convention on free access to environmental information
- Dissemination of statistical documents with regard to legislative responsibility
- The discrepancies between various data within one country, including non-official sources.

## **Session VII: Land use**

Chairperson: Wafa AboulHosn

32. Hubert George from FAO reviewed the definitions of land use and land cover and gave an overview of the environmental and policy issues for which access to statistics on land use is

important. Land-use data are also needed for countries to support their reporting requirements under the various international environmental conventions, including UNFCCC and UNCCD. There is an increasing tendency by countries to widen the scope of land use information collected in order to support a widening range of decision making on issues of societal interest. This implies changes in national land use classification systems since these often serve as guides for land-use data inventory. The need for a wider scope of land use information responding to the range of end users could best be met using flexible parametric approaches for land-use characterization rather than relying on 'a priori' systems based on fixed pre-determined land use classes. The impacts on data quality due to multiple national sources of land-use data as well as examples of national land use inventory approaches were also presented.

### **Session VIII: Land degradation**

Chairperson: Adel AbdelKader

33. Jonathan Handley from UNSD presented on the Land Degradation tables of the Questionnaire. He went through the Soil Erosion Table L2 and discussed the definitions relating to Tables L2, L3 on Salinization and L4 on Desertification.

34. Hubert George from FAO presented the LADA project. The LADA project, which is being undertaken with resources from GEF, GM, UNEP and FAO, among others, would develop novel improved approaches for assessing land degradation in drylands and produce a new global assessment that would represent an improvement over the 1990 GLASOD assessment. LADA emphasizes a participatory, integrated ecosystem approach to land degradation assessment that takes into account biophysical factors as well as socio-economic driving forces, at various spatial and temporal scales. The results would provide improved information on the nature, extent, severity, as well as the socio-economic impact of land degradation, that would be useful for formulating remedial measures as well as for elaborating supportive policies. The project, which started in 2002, is expected to be completed in 2008. He invited countries from the ESCWA region to present proposals to FAO to participate in the LADA project.

35. Abdul Rahim Loulou from ACSAD presented the Land degradation map project for Yemen using Remote Sensing and GIS with the integration of field work. The methodology is based on GLASOD. The results showed that this system with its existing indicators can be used to monitor and evaluate the status of land degradation on a national level. The Yemenite representative showed the results of the study, which included land degradation by water and wind erosion, as well as chemical and physical processes.

36. The discussion on land use and land degradation statistics focussed on the following issues:

- The harmonisation of definitions and classifications of land cover and land use, with regard to a nation's collaboration with more than one international agency
- The differences between the categories of land degradation of GLASOD and LADA. As GLASOD is the current standard, LADA might produce a new standard in the future.
- The selection criteria for funding and technical assistance from FAO for implementation of the LADA and the confirmation that all countries are welcome to be a part of the network. It was felt that there is a specific need for ESCWA countries to be part of the LADA pilot projects.
- The impact of LADA on the Questionnaire. As LADA will not produce results before 2008, the current Questionnaire based on GLASOD will not be modified in 2006.
- That the LADA project will incorporate the reasons for land degradation as well as its impact
- The inclusion of pollution in the land degradation presentation and its incorporation into impact assessment was discussed.

## **Working Group Discussions 2**

37. Three working groups discussed the coherence between the land and waste sections of the Questionnaire and the priority list of environmental indicators for the West Asian region. The result showed more coherence than for the water section of the Questionnaire. Nevertheless adaptations will also be needed for these parts. It was agreed that UNSD will send the written comments to UNEP ROWA, which will then coordinate discussions with the UNEP experts. Country experts will also be consulted within this process.

### **Session IX: GIS and remote sensing**

Chairperson: Adel AbdelKader

38. Adel AbdelKader presented the uses and applications of remote sensing and GIS to environment data, with a focus on what remote sensing can measure and how GIS can be used to acquire, store, process, produce, present and disseminate geo-information. He showed various examples for the applications of remote sensing and GIS in the region.

### **Session X: Statistics on air emission and air quality**

Chairperson: Ulrich Wieland

39. Florence Pintus from Plan Bleu presented on the environmental policy issues of air emissions: Climate change, health, acidity, ozone layer depletion; international conventions and protocols (UNFCCC and CLRTAP) and their objectives; concepts, calculation methods for air pollutants emissions and inventories and reporting formats used by international institutions. In addition, the structure, classification and definitions of the Air section of the Questionnaire and its linkages to other areas of statistics was presented.

40. Main points in the discussion on air pollution and air quality statistics were as follows:

- The limits of air quality measurements (equipment, extrapolation...), the significance of annual mean concentrations in a region where seasonal variability is extreme, and the priority put by international institutions (UNSD, Eurostat) on inventories of air pollutants emissions.
- By only including annual average pollutant concentration, the Questionnaire fails to capture air pollutant concentrations exceeding health limits on a seasonal basis.

### **Session XI: How to strengthen environment statistics in ESCWA countries**

Chairperson: Ulrich Wieland

41. Florence Pintus presented the main objectives, priorities and tools of the MEDSTAT-Environment programme. The presentation focussed on the main results and recommendations for strengthening capacity building and institutional networks on environment statistics on both national and regional scales.

42. Discussions focussed on the following issues:

- The 'sustainability' of the Medstat results was raised in view of the turnover or transfer of permanent staff at the national statistical offices after having been trained in environment statistics.
- The usefulness of implementing a single database system in all countries within the region, such as the MEDSTAT database, was discussed.
- The harmonisation of the different questionnaires submitted by international institutions to ESCWA countries.

### **Working Group Discussions 3**

43. In the last working session, three groups were formed to discuss how environment statistics in ESCWA countries can be strengthened and to develop ideas on how environment statistics can better serve policy makers. Each group discussed one of the following questions:

- How can capacity building be improved?
- How can coordination be improved?
- How can political support to environment and sustainable development be improved?

The result of the working groups and of the subsequent discussions can be found in the following recommendations.

#### **44. Recommendations to improve environment statistics capacity building of ESCWA member countries**

- More funding must be sought for capacity building in environment statistics from national, regional or international sources.
- More intensive training needs to be organised between ESCWA countries or within countries. Exchange of experience among countries with similar experience should be promoted, including field training. Trainers should be trained in order to form a training team. Other ministries and related offices should be invited to environment statistics workshops.
- Continuous training should include the management, in addition to employees at other levels.
- Arabic language needs to be better supported. All questionnaires need to be in Arabic, with the ability for them to be completed in Arabic. A Glossary of terms in Arabic is also needed.
- Better coordination between international organisations is needed to reduce the workload on national statistical offices with respect to filling in the questionnaires and planning workshops. More lead time is required for workshop planning.
- Capacity building in new technologies like GIS and Remote sensing needs to be improved and hardware and software provided.

#### **45. Recommendations to Improve Coordination National Level:**

- The responsibilities for environment statistics between the national statistical office (NSO) and other bodies, especially ministries, need to be clarified. The priorities of the NSO with respect to environment statistics need to be clearly defined.
- A national focal point for Environment Statistics (from NSO's or Environment Departments) needs to be designated to coordinate the work at the national and international level. The same person should also be responsible for coordinating the replies to the Questionnaire.
- A steering committee for environment statistics might be useful in many countries. It should receive a clear mandate which should include the formulation of work plans to improve and monitor environment statistics.

#### **Regional and international Level:**

- Concepts, definitions, standards and classification need to be harmonised on regional (and international) level, with harmony between the manuals developed by international organisations.
- An Environmental ESCWA Bulletin should be published.
- The international organisations should coordinate their work within countries and regions in order to avoid duplication and to maximise efficiency. In the region, UNEP, ESCWA and the League of Arab States in collaboration with UNSD should strengthen their cooperation and coordinate efforts on environment statistics.
- The national coordinator should be involved in setting up methodologies and data collections on the international level.

**46. Recommendations to improve the political support to environment and sustainable development**

National/local environment & development policies and strategies should be strengthened through:

- Promoting the role of environmental data / information/ statistics and consequent budget allocation.
- Promoting a participatory approach to sustainable development and the involvement of all stakeholders including CSOs and private sector.
- Linking environmental issues to economic and social development, e.g. assessment of environmental externalities.
- Promoting Strategic Environmental Assessment (SEA) in line with national and international requirements.
- Promoting and setting the basis for environmental monitoring and auditing to ensure compliance.

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## APPENDICES

### Appendix I

ENVIRONMENT STATISTICS WORKSHOP- DAMASCUS, 4-8 April 2004				
LIST OF PARTICIPANTS				
A. Country participants				
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<b>B. International/ Regional Organizations and Resource Persons</b>				
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## Appendix II

### Training Workshop on Environment Statistics Damascus, 4-8 April 2004

#### Agenda

#### Sunday 4 April

- 8:00 – 9:00 am Registration of Participants
- 9:00 – 9:45 am Opening Ceremony  
Adoption of Agenda, Procedural and Organizational Issues
- 9:45 – 10:00 am **Break**
- 10:00 – 12:30 am **Session I: The need for Environment Statistics and Indicators**
- Country and regional needs: Environmental assessments; information on natural resources; pollution; sustainability; (Adel Abdelkader, UNEP, 20 min.)
  - The Abu Dhabi Global Environment Data Initiative (Dr. Ayad Altaai, Hashim Mohammed Al Hashimi, AGEDI, Abu Dhabi, 20 min.)
  - International needs: Millennium indicators; Johannesburg goals; sustainable development indicators; (Reena Shah, UNDSO, 20 min.)
  - The UNSD questionnaire on environment statistics, frameworks of Environment Statistics and Indicators, the system of environmental accounts (Reena Shah, UNDSO, & Ulrich Wieland, UNSD, 20 min.)
  - The state of environment statistics in the ESCWA region (Khamis Raddad, Statistical Office of Jordan, 10 min.)
  - Questions/comments
- 12:30 – 1:00 pm **Break**
- 1:00 – 3:00 pm **Session II: Statistics on Wastes**
- 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 on waste statistics (Ulrich Wieland, UNSD, 60 min.)
  - Country experience (Egypt, 15 min.)
  - Discussion

#### Monday 5 April

- 8:00 – 10:00 am **Session III: Statistics on Water: resources and use**
- Setting the scope: environmental and policy issues; indicators on water (Jonathan Handley, UNSD, 5 min.)
  - 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 (Khamis Raddad, Statistical Office of Jordan, 30 min.)
  - Application of Statistical Analysis in Water Resource Studies (Mazen Abou Abdullah, ACSAD, Syria, 20 min.)
  - 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 (Michael Nagy, Umweltbundesamt Oesterreich, 40 min)
- 10:00 – 10:15 am **Break**

- 10:15 – 12:00 am **Session IV: Statistics on Water: water treatment and water quality**
- 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 (Michael Nagy, Umweltbundesamt Oesterreich, 80 min.)
  - Discussion
- 12:00 – 12:30 pm **Break**
- 12:30 – 1:30 pm **Session V: Water statistics – country experiences**
- Country experience Iraq, 15 min
  - Country experience Oman, 15 min
  - Discussion
- 1:30 – 3:00 pm **Working group discussions 1**
- *Review of the priority list of environmental water and waste indicators for the ESCWA Region with respect to data availability and with respect to compatibility with the UNSD Questionnaire on Environment Statistics.*
  - Presentation and discussion of results

### **Tuesday 6 April**

- 8:00 – 10:00 am **Session VI: Data treatment and data dissemination**
- Country experience, Jordan, 15 min.
  - From the origin of the data (measurements, surveys, administrative files) over regional and national data bases to dissemination; harmonization of data transmission; standardization of data formats; data validation; data organization and management (Wafa Hosn, ESCWA, 20 min.)
  - Dissemination policies; what to disseminate: Aarhus convention; how to disseminate: Web dissemination vs. paper publications (Reena Shah, UNDS, & Jonathan Handley, UNSD, 20 min.)
  - Country experience, Palestine, 15 min.
  - Country experience, Lebanon, 15 min.
  - Discussion
- 10:00 – 10:30 am **Break**
- 10:30 – 12:00 pm **Session VII: Statistics on land use**
- Setting the scope: environmental and policy issues; sources of land use and land cover statistics: the institutional aspect; concepts, methods and classifications; the Agro-maps initiative; the UNSD questionnaire on land use statistics; linkages to other areas of statistics and data collection (Hubert George, FAO, 50 min.)
  - Country experience: Qatar, 15 min.
- 12.00 **Visit to Palmyra**

### **Wednesday 7 April**

- 8:30 – 10:30 **Session VIII: Land degradation**
- Environmental and policy issues of land degradation; The UNSD questionnaire on land degradation (Jonathan Handley, UNSD, 15 min.)
  - Land degradation – concepts, data collection, and presentation; sources of land degradation statistics: the institutional aspect; concepts, methods and classifications; the LADA project (Hubert George, FAO, 30 min.)
  - Data and information collection on land degradation, case study from Yemen (Abdul Rahim Loulou and Ali Abdullah, ACSAD, Syria, 20 min.)
  - Country experience, Yemen, 15 min.

- 10:30 – 11:00 am **Break**
- 11:00 – 1.15 pm **Working group discussions 2**  
 - *Review of the priority list of environmental land indicators for the ESCWA region with respect to data availability and with respect to compatibility with the UNSD Questionnaire on Environment Statistics;*  
 - Presentation and discussion of results
- 1:15 – 1:45 pm **Break**
- 1:45 – 3:00 pm **Session IX: GIS and Remote Sensing**  
 - The use of GIS and remote sensing for environmental data and indicators (Adel Abdelkader, UNEP, 50 min.)  
 -Discussion

**Thursday 8 April**

- 8:00 – 9:30 am **Session X: Statistics on air emission and air quality**  
 - 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; linkages to other areas of statistics (Florence Pintus, Plan Bleu, 50 min.)  
 - Discussion
- 9:30 - 10.00 am **Session XI: How to strengthen environment statistics in ESCWA countries**  
 - Experiences from results of the Medstat project (Florence Pintus, Plan Bleu, 20 min.)
- 10:00 – 10:15 am **Break**
- 10:15 – 12:00 am **Working group discussions: How can environment statistics in ESCWA countries be strengthened**  
 - *Develop ideas on how environment statistics can be better developed in countries and how it can better serve policy makers*  
 - Presentation and discussion of results
- 12:00 – 12:30 am **Break**
- 12:30 – 2:30 pm **Closing Session: Conclusions and recommendations**  
 Discussion of the emerging regional list of indicators  
 Conclusions and recommendations  
 Workshop report  
 Workshop evaluation  
 Certificates  
 Closing of the workshop

## Appendix III

### List of Workshop Documents

1. Adequacy and Validity of Environmental Data in the Arab Region, prepared by Hanan Atallah, UNESCWA, LAS, AMFED, UNEP/ROWA, 2003
2. Assessment of the Situation of Environment Statistics in the 13 Member States of the Economic and Social Commission of Western Asia (ESCWA), prepared by Khamis Raddad, United Nations Statistics Division, 2002
3. Database Creation and Management, Monther Al-Badryah, Department of Statistics, Jordan, 2004
4. Data Information collection on Land Degradation: Case Study from Yemen, prepared by Prof. Gilani Abdelgawad, Eng. Abdul Rahim Loulou et al, ACSAD, 2004
5. Draft Core Set of Environmental Indicators for West Asia / Arab Region: Regional Workshop on Priority Environmental Indicators, 13-15 October 2003, Manama, Bahrain, UNEP ROWA
6. Environment and Development Information in Lebanon, Reem Fayyad and Ziad Abdallah, Ministry of Environment and Central Administration of Statistics, Lebanon, 2004
7. Environment Statistics in Iraq, Huda Hadawi, Central Statistical Organisation, Iraq, 2004
8. Environment Statistics in Palestine: Achievements, Procedures, and Obstacles, Palestinian Central Bureau of Statistics, 2004
9. Environment Statistics in Syria, Ihsan Amer, Central Bureau of Statistics, Syria, 2004
10. Statistics of Land Degradation, Ahmad Molkat, Amin Gaid and Hamed Al-Hammadi, Environmental Protection Authority and Central Statistical Organisation, 2004
11. Towards the Application of Environmental Statistics in The Kingdom of Bahrain: Overview on Waste Water Related Environmental Indicators, prepared by Ali Jassim Mohammed Al-Hesabi, Public Commission for the Protection of Marine Resources, Environment, and Wildlife, Kingdom of Bahrain, 2004
12. UNSD/UNEP Questionnaire 2004 on Environment Statistics, available in English, French, Arabic and Spanish on the UNSD website  
<http://unstats.un.org/unsd/environment/questionnaire2004.htm>
13. Waste Statistics in Egypt, Maged Ibrahim Mohamed Amer and Safaa Wahba, 2004
14. Water Resources and Future Challenges in Iraq, Dr Ali Hussein Aziz, Ministry of Environment, Iraq, 2004
15. Water Statistics in Oman, Saud Mohammed Al-Harhi and Khamis Al-Siyabi, Ministry of National Economy and Ministry of Regional Municipalities, Environment and Water Resources, 2004