



# Status and Needs of Environment Statistics and Indicators in the ESCWA region



## Wafa Aboul Hosn

Team leader, Sectoral Statistics, SCU  
Economic and Social Commission for Western Asia (ESCWA)  
Beirut, Lebanon, P.O.Box: 11-8575, Riad Solh Square, Beirut  
Tel: (961 1) 978-519, Fax: (961 1) 981 510  
Email: [aboulhosn@un.org](mailto:aboulhosn@un.org)

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# Introduction

- u The need for reliable and timely information on the environment has become a major challenge to monitor progress towards achieving national and internationally agreed development goals (MDGs and Sustainable Development) since environment is an integral component of social and economic development.
- u Environment statistics is a basic tool to collect, organize and disseminate information on the environment and for the calculation of environmental indicators, environmental accounting and reporting.
- u In the countries of the Economic and Social Commission for Western Asia (ESCWA), water scarcity, water and air pollution, land degradation, depletion of natural resources are of primary concern.
- u However, environment statistics is still not sufficiently developed in the region
- u UNESCWA, UNSD, collaborated to build capacity in the field. Project on "Strengthening Statistical Capacity in the ESCWA Region" in 2002, including a workshop on environment statistics 2004 in Damascus, a programme of fellowships in environment statistics and an assessment of the situation in environment statistics in 2002 and updated in 2005.

# Some Facts

The ESCWA region, representing 13 countries of West Asia and Egypt,

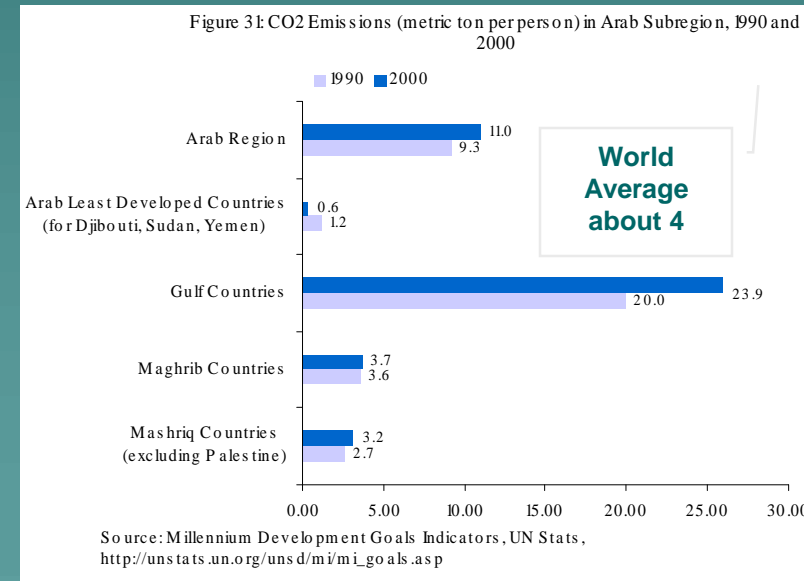
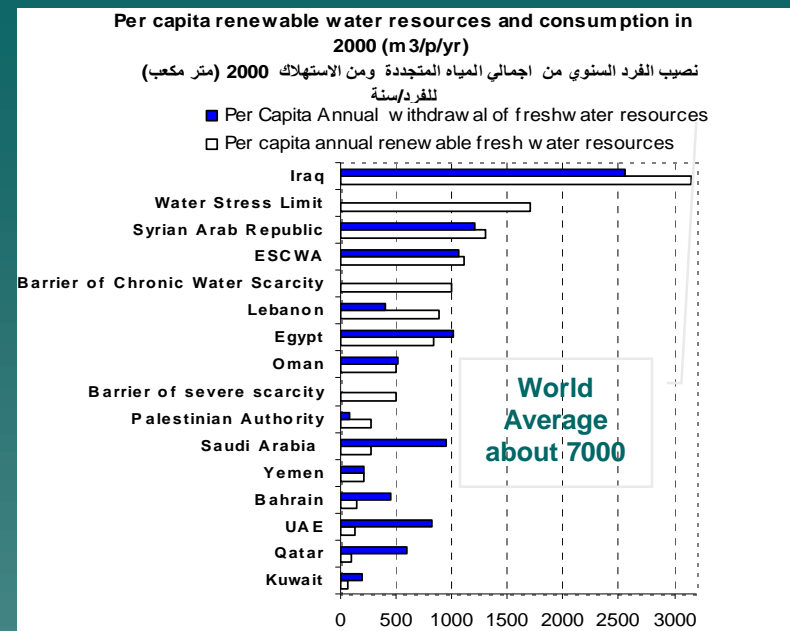
70% of the region being arid

scarcity and uneven availability of freshwater resources representing only 0.4 % of the global renewable water resources although it accounts for 3% of the world's population.

The average per capita renewable water resources in the ESCWA region was 965 cubic meters per year in 2001 compared to 7,000 for world average.

8 ESCWA under 500 cubic meters per year which indicates absolute water scarcity.

53% of oil reserves and 26% of natural gas reserves





# Legal and institutional frameworks for the collection of environment statistics

Environmental data is not readily available in the region due to the following Legal and institutional obstacles :

- u Lack of suitable infrastructure for environment statistics. Countries have not started environment statistics programmes
- u Lack of monitoring systems
- u Legislation on environment statistics: the National Statistical Offices are the authority responsible to collect, compile and disseminate official statistics including environment statistics based on a general statistical law, or a statistical law that covers environment statistics.
- u Several departments collect data on environment; Ministries of Environment, of Agriculture, of Water,
- u The different departments do not follow the same methodology.
- u Most countries did not develop an appropriate cooperation network
- u Lack of resources in staff and in specific experience.
- u Inadequate monitoring of the state of environment

## Coverage, Periodicity and Timeliness of environment statistics in the region

- u Geographical coverage: existing monitoring programmes are restricted to urban centres
- u Time coverage is limited even though time-series data are crucial for decision-makers to monitor environmental trends
- u Timeliness: The time delays are still long for collection and dissemination (months to years)
- u Periodicity: About 50% of member states carry out regular environmental data collection through special statistical surveys (of the GCCs, Saudi-Arabia, and Kuwait). Waste and water are mostly covered.

# Methodologies of environment statistics in the ESCWA region

- ⌘ Statistical methodologies for the collection of environmental statistics such as sampling design, the specification of the survey population, methods of data collection are not followed
- ⌘ Methods of calculation, statistical modelling, indicators are not developed
- ⌘ Countries do not apply the same concepts and definitions
- ⌘ Countries apply different versions or different international classification. Jordan, Palestine, Saudi-Arabia, Syria and Lebanon apply international classifications in land use. Most of the countries apply national standards which are not always compatible with international classifications.
- ⌘ Sample surveys for data collection on environment are ad-hoc rather than driven by policy objectives
- ⌘ Differences in definitions, classifications, methodology and time periods, making comparisons difficult.

# Quality of environment statistics and indicators in the ESCWA region

- u Lack of enforcement of environmental legislation in relation to development of inspection procedures
- u Absence of regional or national accreditation schemes for environmental laboratories and measurement systems
- u Raw data entry quality assurance
- u The calculation of indicators is limited by the quality of the underlying data from different sources
- u Integrating data into indices is difficult because of complications in weighting the components of an index
- u problems in the generalisation from site-specific data, which is not recommended due to the lack time-series data over long periods of time.





# Environmental Data collection activities in member countries

- u A few countries add special questions on environmental issues to questionnaires of existing surveys (for example to the Economic Enterprise Survey or the Household Budget Survey).
- u FAO questionnaires on Water resources
- u MedStat/Plan Bleu-Euro-Mediterranean statistical cooperation project MEDSTAT-Environment (Egypt, Syrian, Lebanon, Jordan and Palestine)
- u UNSD/UNEP Questionnaire (round 2004 and 2006)
- u ESCWA Questionnaire on water (2004). ESCWA sent questionnaires (in Arabic and English) on water resources in end 2004, 62% response rate, of which 3 GCCS;
- u ESCWA Questionnaire on environment statistics (2005) (includes water quality, health and environment, waste, air, biodiversity, and environmental policies ) sent in June in 2005, 30% response rate, none from GCCs.
- u UNSD, UNEP and UNESCWA share data received by ESCWA countries
- u Collaboration with other UN such as FAO, GEMS and others are expected to unify questionnaires and avoid duplications

# ESCWA Questionnaire on water (2004) and Environment (2005)

الأمم المتحدة	
اللجنة الاقتصادية والاجتماعية لغربي آسيا	
UNITED NATIONS	NATIONS UNIES
Economic and Social Commission for Western Asia ESCWA	Commission économique et sociale pour l'Asie occidentale
	
FAX: (961-1) 981510 - TEL: (961-1) 981301, 981311, 981401	
P. O. BOX 11-8575 - Beirut, Lebanon	
SUSTAINABLE DEVELOPMENT & PRODUCTIVITY DIVISION إدارة التنمية المستدامة والإنتاجية	
UN ESCWA QUESTIONNAIRE ON اسم تبيان اللجنة الاقتصادية والاجتماعية لغربي آسيا (اسكوا) حول	
SECTORAL STATISTICS 2004 /Section Water الإحصاءات القطاعية 2004 / جزء المياه	
Please fill the information and questionnaire and return to:	
الرجاء تعبئة المعلومات وتكملة الاستبيان المرفق واعادته الي:	
Economic and Social Commission for Western Asia (ESCWA) اللجنة الاقتصادية والاجتماعية لغربي آسيا (اسكوا)	
FAX: (961-1) 981510 (961) 1 981510 رقم الفاكس:	
Address: P. O. BOX 11-8575 العنوان: ص. ب 11 8575	
Beirut, Lebanon بيروت, لبنان	
Replying Country: الدولة المجيبة:	
Replying office المكتب المجوب:	
Contact person : اسم الموظف :	
Official Position المنصب الوظيفي:	
Address العنوان الرسمي الدائم:	
Tel: رقم الهاتف:	
Fax رقم الفاكس:	
email: البريد الإلكتروني:	
Replying Country: الدولة المجيبة:	
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SECTORAL STATISTICS /Section Environment الإحصاءات القطاعية / جزء البيئة	
In collaboration with UNSD and UNEP/ROWA ( UNEP) وبالتعاون مع شعبة الاحصاء بالامم المتحدة (UNSD) وبرنامج الامم المتحدة الانمائي ( UNEP)	
Year: 2005 السنة 2005	
Please fill the information and questionnaire and return to:	
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Economic and Social Commission for Western Asia (ESCWA) اللجنة الاقتصادية والاجتماعية لغربي آسيا (اسكوا)	
FAX: (961-1) 981510 (961) 1 981510 رقم الفاكس:	
Address: P. O. BOX 11-8575 العنوان: ص. ب 11 8575	
Beirut, Lebanon بيروت, لبنان	
Replying Country: الدولة المجيبة:	
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Contact person : اسم الموظف :	
Official Position المنصب الوظيفي:	
Address العنوان الرسمي الدائم:	
Tel: رقم الهاتف:	
Fax رقم الفاكس:	
email: البريد الإلكتروني:	
For information, Contact Wafa Aboul Hosen للاستفسار الرجاء الاتصال ب: وفاء ابو الحسن	
Official Position: Team Leader, Sectoral Statistics المنصب الوظيفي: رئيس فريق - الإحصاءات القطاعية	
TEL: 961-1- 978-519 (961) 1 978519 رقم الهاتف:	
FAX: (961-1) 981510 (961) 1 981510 رقم الفاكس:	
email: aboulhosn@un.org البريد الإلكتروني: aboulhosn@un.org	

# Selected Indicators in Environment for the ESCWA region

WATER QUALITY	Ground Water Quality	Conductivity level of Ground Water in Site 1	مستوى التوصيلية للمياه الجوفية	A	micromhos per centimeter
WATER QUALITY	Ground Water Quality	Annual average flow of Ground Water in Site 2	معدل التدفق السنوي للمياه الجوفية	A	m <sup>3</sup> /s
WATER QUALITY	Ground Water Quality	demand (BOD5) of Ground Water in Site 2	الطلب البيولوجي الكيميائي على الأكسجين (BOD5) للمياه الجوفية		mg O <sub>2</sub> /l
WATER QUALITY	Ground Water Quality	Demand (BOD) of Ground Water in Site 2	نسبة الطلب البيولوجي على الأوكسجين للمياه الجوفية	A	ppm
WATER QUALITY	Ground Water Quality	Dissolved oxygen (DO) of Ground Water in Site 2	الأكسجين الذائب (DO) للمياه الجوفية		mg O <sub>2</sub> /l
WATER QUALITY	Ground Water Quality	(COD) of Ground Water in Site 2	الطلب الكيميائي على الأكسجين (COD) للمياه الجوفية		mg O <sub>2</sub> /l
WATER QUALITY	Ground Water Quality	(TDS) of Ground Water in Site 2	مجموع المادة الصلبة الذائبة (TDS) للمياه الجوفية		mg/l
WATER QUALITY	Ground Water Quality	Total phosphorus of Ground Water in Site 2	مجموع الفسفور للمياه الجوفية		mg P/l
WATER QUALITY	Ground Water Quality	Total nitrogen of Ground Water in Site 2	مجموع النيتروجين للمياه الجوفية		mg N/l
WATER QUALITY	Ground Water Quality	Concentration of Nitrate of Ground Water in Site 2	كثافة النترات للمياه الجوفية	A	mg/l
WATER QUALITY	Ground Water Quality	Organic Halogens of Ground Water in Site 2	كثافة المواد العضوية والهالوجينية الكلية للمياه الجوفية	A	%
WATER QUALITY	Ground Water Quality	Coliform of Ground Water in Site 2	كثافة البكتيريا القولونية المغطاة للمياه الجوفية	A	Colonies/100 ml
WATER QUALITY	Ground Water Quality	Conductivity level of Ground Water in Site 2	مستوى التوصيلية للمياه الجوفية	A	micromhos per centimeter
WATER QUALITY	Surface Water Quality	Annual average flow of Surface Water in Site 1	معدل التدفق السنوي للمياه السطحية	A	m <sup>3</sup> /s
WATER QUALITY	Surface Water Quality	demand (BOD5) of Surface Water in Site 1	الطلب البيولوجي الكيميائي على الأكسجين (BOD5) للمياه السطحية		mg O <sub>2</sub> /l
WATER QUALITY	Surface Water Quality	Demand (BOD) of Surface Water in Site 1	نسبة الطلب البيولوجي على الأوكسجين للمياه السطحية	A	ppm
WATER QUALITY	Surface Water Quality	Dissolved oxygen (DO) of Surface Water in Site 1	الأكسجين الذائب (DO) للمياه السطحية		mg O <sub>2</sub> /l
WATER QUALITY	Surface Water Quality	(COD) of Surface Water in Site 1	الطلب الكيميائي على الأكسجين (COD) للمياه السطحية		mg O <sub>2</sub> /l
WATER QUALITY	Surface Water Quality	(TDS) of Surface Water in Site 1	مجموع المادة الصلبة الذائبة (TDS) للمياه السطحية		mg/l
WATER QUALITY	Surface Water Quality	Total phosphorus of Surface Water in Site 1	مجموع الفسفور للمياه السطحية		mg P/l
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WATER QUALITY	Surface Water Quality	Concentration of Nitrate of Surface Water in Site 1	كثافة النترات للمياه السطحية	A	mg/l

# ESCWA Information system on indicators: environment and water resources modules

ESCWA information System on Indicators (ESIS) developed by ESCWA is a system for storing and retrieving selected statistical indicators for a specified group of countries /regions and a specified time series  
<http://esis.escwa.org.lb/>

- Improves availability, accessibility and usage of National and regional data and information in socio-economic fields and provides modes of presentation to facilitate analysis and decision making

- Indicators are organized into modules or Sectors, categories, sub-categories

- Sectoral Statistics team added modules on environment, water resources, agriculture and energy resources with selected indicators and available data  
"Live Demo"

## Dissemination of environment statistics in the ESCWA region

- u Most countries do not publish specific reports on environment statistics (except Jordan and Palestine) but include the annual statistical or specific reports.
- u Most countries do not disseminate on the web, data and indicators on the environment

# Data Gaps of environment statistics in the ESCWA region -1

Data gaps in ESCWA countries depend on the national priorities are different: in Egypt, water and air statistics, in Jordan, water statistics, land use, and waste statistics, in Saudi Arabia, water statistics household environment statistics, costal zone, and marine water quality. Data gaps that are common concern the following:

On Water quantity statistics:  
 More accurate measurement of resources (surface and groundwater) water supply, water withdrawal by sectors and economic activity , water distribution, water markets

On Health & Environment	Egy	Pal
Water borne-diseases	ü	x
Population connected to waste water systems (collecting, treatment, independent)		x
population with sustainable access to water and sanitation		ü

On Water quality statistics	Egy	Pal
Biochemical oxygen demand	ü	X
Dissolved oxygen (DO)	ü	old
Chemical oxygen demand (COD)	ü	x
Total dissolved solids (TDS)	ü	ü
Total phosphorus	X	x
Total nitrogen	X	x
Faecal coliform	X	x
Conductivity	X	ü
Discharge of Organic water pollutants by industrial activities	X	X

# Data Gaps of environment statistics in the ESCWA region -2

<u>On waste</u>	Egy	Pal
Waste Generation by Sector	ü...	x
Treatment and Disposal of Municipal Waste	X	
Composition of Municipal Waste	ü	ü
Hazardous waste	ü	ü
Waste Treatment and Disposal Facilities	x	x
<u>On Air quality and air emissions</u>	Egy	Pal
Carbon Dioxide (CO <sub>2</sub> ) emissions	ü	ü
Sulfur Dioxide (SO <sub>2</sub> )	ü	ü
Nitrogen Oxides (NO <sub>x</sub> )		ü
Non-Methane Organic Compounds (NM-VOCs)		ü
Methane (CH <sub>4</sub> )		ü
Nitrous Oxide (N <sub>2</sub> O)		ü
Lead (Pb)	ü	ü
TSP	ü	
Emissions by sector		ü
Concentrations		x
Air Quality (Urban-Background)		x

# Data Gaps of environment statistics in the ESCWA region-3

- u On land:
  - Land use (Agricultural and cultivable land)
  - land degradation (Use of LADA for classification)
- u On biodiversity: Threatend species X
  - protected areas and forest cover ü
- u On environmental policies: follow-up and reporting (Limited)
- u On coastal ecosystems:
  - marine pollution, urban development in coastal areas, destruction of marine habitats (x)



## Activities of ESCWA 2006-2007 in Environment Statistics

- u ESCWA Publication on Compendium on Environment Statistics in the ESCWA region planned for 2006
- u Country and Regional Profiles in Sustainable Development Indicators in Selected Sectors  
<http://www.escwa.org.lb/information/publications/>
- u Expert group meeting on Production of Statistics on Natural Resources in 2007
- u Interdisciplinary work among ESCWA teams and divisions on environment Statistics
- u Close collaboration with UNSD on capacity building in ESCWA member countries in environment statistics
- u Raising awareness on environmental accounting in particular water and energy accounts



# Ways to encounter the challenges and address the problems

1. Strengthen legal/Institutional framework
2. Develop comprehensive multi-disciplinary, multi level capacity building programmes
3. Invest in environmental data collection (financial, technical, human resources)
4. Set-up environmental monitoring systems to compile comprehensives data based on systematic measurements into information systems
5. Ensure quality assurance and quality control practices (QA/QC) according to international guidelines;



## Ways to encounter the challenges and address the problems: National



6. Apply international methodologies to improve quality and allow comparability while taking into account regional priorities
7. Increase temporal and spatial coverage to generate time-series data used for monitoring environmental trends across the country
8. Disseminate quality environmental data regularly
9. Develop national and regional information systems for environment and energy resources  
Disseminate results
10. Integrate environmental accounts to economic growth to enable more comprehensive policy decisions in order to achieve sustainable development




# Ways to encounter the challenges and address the problems: Regional

1. Enhance Inter and Intraregional cooperation including scientific cooperation and Build Strategic partnerships
2. Enhance cooperation with international and regional organizations to build capacity in the field
3. Exchange environmental information within and between countries of the region

# ESCWA Project on strengthening statistical capacity of ESCWA and North African countries in environment statistics (2005 ...waiting for funding...)

 ESCWA   
Project  
on environment  
statistics  
in the Middle East and  
North Africa Region





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