

# Session 1: International Requirements for Environmental Statistics and Indicators

United Nations Statistics Division  
Workshop on Environment Statistics  
(Yaoundé, 5 – 9 December 2011)

# Requirements for environment statistics

- Global
- International
- Regional
- National/sub-national

These requirements may overlap. We will focus on the international requirements.

# Main types of international requirements

International requirements are for assessment, monitoring and planning (measurement in the past, current, future) for:

- Follow up on global conferences
- Reporting to international conventions
- Supporting thematic/topical international data collections
- Contributing to comprehensive international environment statistics data collections
- Can also provide a model for country collections

## Advantages of identifying international requirements:

- Identifying what should be measured in different domains of environment statistics;
- Identifying the standards, concepts, classifications and definitions that will enable coordination and harmonization;
- Allowing countries to see where there is need for improvement;
- Identifying data gaps.

# Global versus International

- Global statistics: give a picture of the world as a whole (e.g. global environmental issues like climate change)
- International statistics: provide comparable country statistics that can be aggregated to regional/global level (e.g. contribution to pressures that cause the global concern)

# Global reporting - follow up on global conferences

- Millennium Development Goals Indicators
- Indicators of Sustainable Development
- Other Development Indicator sets

Objective: to monitor progress based on an agreed set of indicators

Level: global (MDGs); national (ISD)

# International Reporting - to International Conventions

## Examples:

- United Nations Framework Convention on Climate Change
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Objective: to monitor compliance with regulations based on a prescribed set of data

Level: national (parties)

# Central African Region participation in climate change and other international environmental agreements – as of 2010

Participation in Climate change and other international environmental agreements													
	Basel Convention	Convention on Biological Diversity	Convention on International Trade in Endangered Species	Convention on Migratory Species	World Heritage convention	Montreal Protocol	Ramsar Convention	Rotterdam Convention	Stockholm Convention	United Nations Convention to Combat Desertification	United Nations convention on the Law of the Sea	UNFCCC	Kyoto
Cameroon	2001	1994	1981	1983	1982	1989	2006	2001	...	1997	1985	1994	2002
Central African Republic	2006	1995	1980	...	1980	1993	2006	...	...	1996	...	1995	2008
Chad	...	1994	1989	1997	1999	1994	1990	2003	2004	1996	...	1994	...
Congo	2007	1996	1983	2000	1987	1994	1998	2005	2007	...	2008	1996	2007
Equatorial Guinea	2003	1994	1992	...	...	2006	2003	2002	...	1997	1997	2000	2000
Gabon	2008	1997	1989	2008	1986	1994	1987	2002	2007	1996	1998	1998	2006
Sao Tome and Principe	...	1999	2001	2001	2006	2001	2006	...	2006	1998	1987	1999	2008



# Thematic/topical international data collections

**Objective: provide internationally comparable data based on standard questionnaires and methodology. The aim is not directly environmental but the data are used in environment statistics.**

## **Examples:**

- **UNSD**
  - Energy statistics, industrial statistics, trade statistics, national accounts, demographic statistics
- **FAO**
  - AQUASTAT (water)
  - FAOSTAT (agriculture, nutrition, fisheries, forestry, food aid, land use and population)
  - FISHSTAT (fisheries)
  - FORIS (forests)
  - GLIPHA (Global Livestock Production and Health Atlas)
- **UNEP**
  - World Conservation Monitoring Centre (protected areas)
  - GEMS-Water (water quality)

**Level: national**

# Comprehensive international environment statistics data collections

- UNSD/UNEP Questionnaire on Environment Statistics
- OECD/Eurostat Questionnaire on the State of the Environment

Objective: to provide internationally comparable statistics on environmental issues based on standard questionnaires and methodology

Level: national

# UNSD/UNEP Questionnaire on Environment Statistics

- 2004 Questionnaire included sections on:
  - Air; Land; Waste; and Water
- 2006 Questionnaire included sections on:
  - Waste; and Water
- 2008 Questionnaire includes sections on:
  - Waste; and Water
- 2010 Questionnaire includes sections on:
  - Waste; and Water

2004 Questionnaires: <http://unstats.un.org/unsd/environment/questionnaire2004.htm>

2006 Questionnaires: <http://unstats.un.org/unsd/environment/questionnaire2006.htm>

2008 Questionnaires: <http://unstats.un.org/unsd/environment/questionnaire2008.htm>

2010 Questionnaires: <http://unstats.un.org/unsd/environment/questionnaire2010.htm>

# UNSD/UNEP 2010 Questionnaire Content

- Waste
  - R1: Generation of Waste by Source
  - R2: Management of Hazardous Waste
  - R3: Management of Municipal Waste
  - R4: Composition of Municipal Waste
  - R5: Management of Municipal Waste – City Data
  - R6: Supplementary information sheet

# UNSD/UNEP 2010 Questionnaire Content

- Water
  - W1 Renewable Freshwater Resources
  - W2 Freshwater Abstraction
  - W3 Freshwater Available for Use
  - W4 Total Water Use
  - W5 Water Supply Industry (ISIC 36)
  - W6 Wastewater Treatment Facilities
  - W7 Population Connected to Wastewater Treatment
  - W8 Supplementary information sheet

[http://unstats.un.org/unsd/environment/Questionnaires/q2010Water\\_French.pdf](http://unstats.un.org/unsd/environment/Questionnaires/q2010Water_French.pdf)

[http://unstats.un.org/unsd/environment/Questionnaires/q2010Water\\_English.pdf](http://unstats.un.org/unsd/environment/Questionnaires/q2010Water_English.pdf)

# UNSD/UNEP 2004 Questionnaire Content

- **Air**
  - Emissions
    - A1 Emissions of Sulfur Dioxide (SO<sub>2</sub>)
    - A2 Emissions of Nitrogen Oxides (NO<sub>x</sub>)
    - A3 Emissions of Non-Methane Volatile Organic Compounds (NM-VOCs)
    - A4 Emissions of Carbon Dioxide (CO<sub>2</sub>)
    - A5 Emissions of Methane (CH<sub>4</sub>)
    - A6 Emissions of Nitrous Oxide (N<sub>2</sub>O)
    - A7 Emissions of Lead (Pb)
    - A8 Supplementary Information Sheet for Emissions Data
  - Ambient air quality
    - A9 Annual Mean Concentrations of Sulfur Dioxide (SO<sub>2</sub>) in Ambient Air
    - A10 Annual Mean Concentrations of Nitrogen Dioxide (NO<sub>2</sub>) in Ambient Air
    - A11 Annual Mean Concentrations of Suspended Particulate Matter (<10µm) (SPM<sub>10</sub>) in Ambient Air
    - A12 Supplementary Information Sheet for Ambient Air Quality Data

# UNSD/UNEP 2004 Questionnaire Content

- Land
  - L1 Land Use
  - L2 Area Affected by Soil Erosion
  - L3 Area Affected by Salinization
  - L4 Area Affected by Desertification
  - L5 Supplementary Information Sheet on the Land Section

<http://unstats.un.org/unsd/environment/q2004land.xls>

# Responding to international data requests

In the questionnaires key guidance is provided in the area of environment statistics:

- Classifications to be used
- Definitions
- Concepts spelled out

But this is a two-way street:

- Through supplementary information provided by countries, information is also provided to international agencies on practices in the field. This informs on general availability of data and may influence future standards.

UN Classifications Website - <http://dcap020:81/unsd/cr/registry/>



# UNSD Data Dissemination

## UNSD disseminates data through:

- UNSD Environmental Indicators (Air and climate, Biodiversity, Energy and minerals, Forests, Governance, Inland water resources, Land and agriculture, Marine and coastal areas, Natural disasters, and Waste) (<http://unstats.un.org/unsd/environment/qindicators.htm>)
- Country Files (access to country files is restricted to countries and international organizations that participate in the data collection (<http://unstats.un.org/unsd/environment/Questionnaires/index.asp>)
- Country Snapshots ( these include UNSD environmental indicators and other economic/demographic data ([http://unstats.un.org/unsd/environment/Questionnaires/country\\_snapshots.htm](http://unstats.un.org/unsd/environment/Questionnaires/country_snapshots.htm))
- Environment statistics in UNData (<http://data.un.org/>)

# UNSD Environmental Indicators

The screenshot shows the UNSD Environmental Indicators website. At the top, there is a navigation menu with links for Home, Statistical Databases, Publications, Methods & Classifications, Meetings & Events, and Technical Newsletters. A search bar with the text "[Site search]" and a "Go" button is located on the right side of the menu.

The main content area is titled "UNSD Environmental Indicators". It contains two paragraphs of introductory text. The first paragraph states that the indicators disseminate global environment statistics on ten themes, compiled from various data sources. The second paragraph explains that statistics on Water and Waste are based on official statistics from national offices, while other themes are compiled from international sources like OECD, Eurostat, and FAO. It also notes that UNSD is not responsible for the quality or availability of the data.

Below the text, there is a list of ten indicator themes, each with a small icon and a blue background bar:

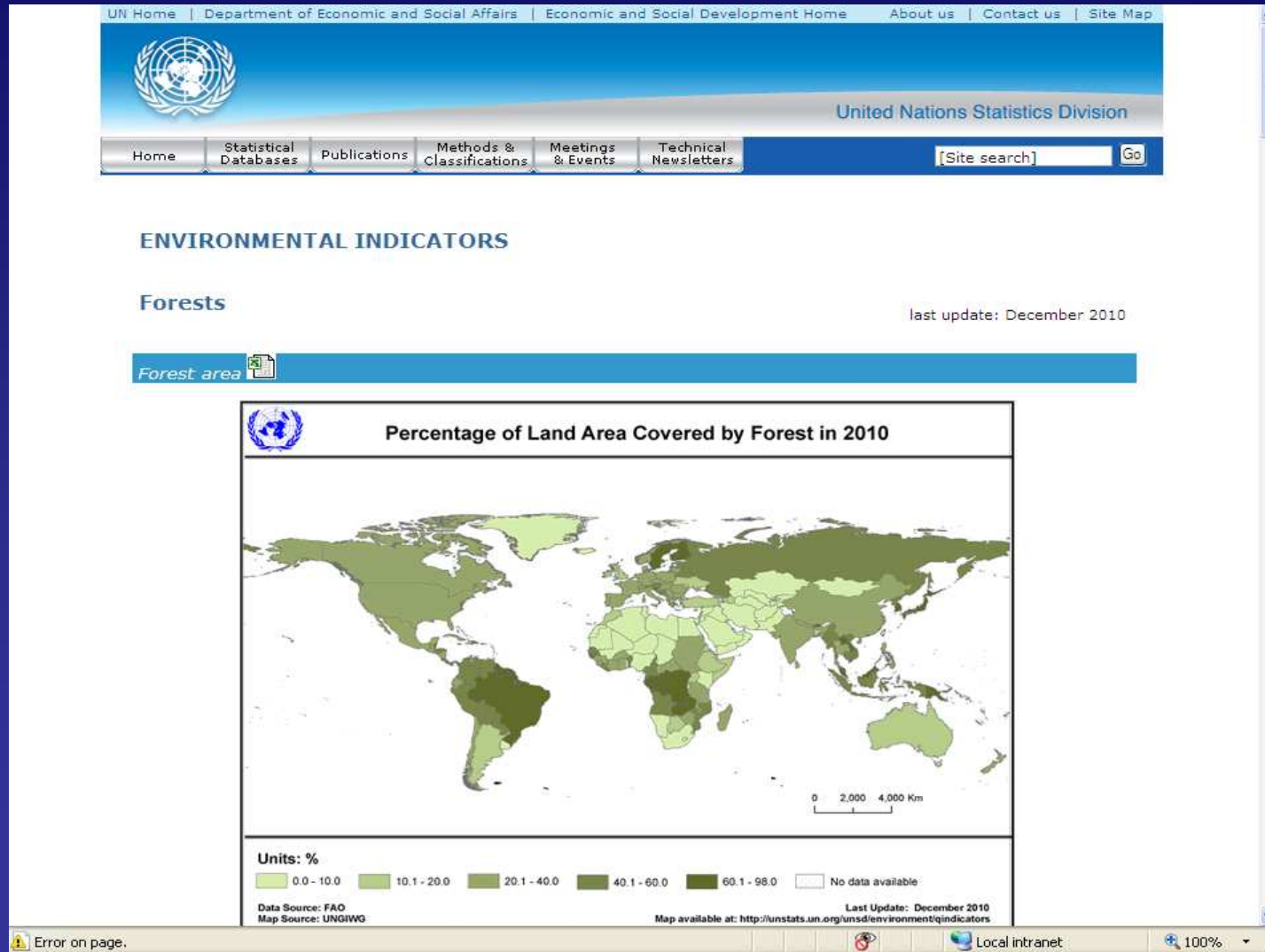
- Air and Climate
- Biodiversity
- Energy and Minerals
- Forests
- Governance
- Inland Water Resources
- Land and Agriculture
- Marine and Coastal Areas
- Natural Disasters
- Waste

On the left side of the page, there is a sidebar with several expandable sections:

- Environment Statistics**: History and current activities, Brochure on Environment Statistics, FAQ.
- Methodology**: Expert Group on the Revision of the FDES, International Recommendations for Water Statistics, Concepts and methods in Environment Statistics, Glossary, Working Papers.
- Data**: UNSD environmental indicators, Country Snapshots, Country Files (Limited access), Questionnaires.
- Technical cooperation**: ECOWAS project, ESCWA project, CARICOM project, Workshops.
- Coordination**: Intersecretariat Working Group on Environment Statistics, Work Session on Water Statistics.
- Reports to the Statistical Commission**
- ENVSTATS newsletters**
- Useful links**: National data sources, International and regional data sources, Environmental accounting.
- Contact us**

The bottom of the page shows a Windows taskbar with a "Done" notification, a "Local intranet" address bar, and a "100%" zoom level.

# Environmental Indicators – Forest area



# Country Snapshot – Sao Tome and Principe

## Environment Statistics Country Snapshot: Sao Tome and Principe

### Sao Tome and Principe



#### Air and climate

Emissions of:		Year
SO2 (1000t)	---	
SO2 per capita (kg)	---	
NOx (1000t)	1	1998
NOx per capita (kg)	8	1998
CO2 (million tonnes)	0	2007
CO2 per capita (tonnes)	1	2007
GHG (million tonnes CO2 eq.)	0	1998
GHG per capita (tonnes CO2 eq.)	1.0	1998
Ozone depleting CFCs (ODP tonnes)	0	2008
GHG from energy (%)	82	1998



Note: The boundaries, the names shown, and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

#### Biodiversity

Proportion of terrestrial and marine areas protected (%)	---	
Number of threatened species	70	2010
Fish catch (tonnes)	4 250	2008
Change in fish catch from previous year (%)	0	2008

#### Economy

GDP growth rate from previous year (%)	6	2008
GDP per capita (\$US)	1 302	2009
% Value added agriculture, hunting, forestry, fishing	17	2009
% Value added mining, manufacturing, utilities	9	2009
% Value added other	74	2009

#### Energy

Energy consumption (1000t oil eq.)	44	2007
Energy consumption per capita (kg oil eq.)	278	2007
Energy use intensity (kg oil eq.) per \$1,000 (PPP) GDP	---	
Renewable electricity production (%)	23	2007

#### Land and agriculture

Total area (sq km)	964	2008
Agricultural land (sq km)	550	2008
Arable land (% of agric. land)	16	2008
Permanent crops (% of agric.land)	82.0	2008

		Year
Permanent meadows and pastures (% of agric. land)	2	2008
Change in agricultural land area since 1990 (%)	31	2008
Forest area (sq km)	270	2010
Change in forest area since 1990 (%)	0	2010

#### Population

Population (1000)	165	2010
Population growth rate from previous year (%)	2	2010

#### Waste

Total population served by municipal waste collection (%)	---	
Municipal waste collected (1000t)	---	
Hazardous waste generated (tonnes)	---	

#### Water and sanitation

Long-term average renewable freshwater resources (mio m3/yr)	2 180	N / A
Urban population with access to improved drinking water source (%)	89	2008
Rural population with access to improved drinking water source (%)	88	2008
Urban population with access to improved sanitation (%)	30	2008
Rural population with access to improved sanitation (%)	19	2008

# Snapshot – Sao Tome and Principe

## Environment Statistics Country Snapshot: Sao Tome and Principe

Last updated:  
August 2011

These snapshots provide data about the environment and other related statistics at a point in time that will allow comparison between countries. For up to date data, time series, downloadable data, and additional information, please visit original sources. UNCTAD is not responsible for the quality, completeness / availability, and validity of data obtained from other data providers. Original sources should be cited when snapshots data are referenced. A list of sources and corresponding URLs are shown below.

### Data Sources

#### Food and Agriculture Organization of the United Nations (FAO) Database

Fish catch, Change in fish catch from previous year, Agricultural land, Arable land, Permanent crops, Permanent pasture and meadows, Change in agricultural land area since 1990, Forest area, Change in forest area since 1990, and some of Long-term average renewable freshwater resources data are extracted from FAO.  
FAOSTAT: <http://faostat.fao.org/>  
AQUASTAT: <http://www.fao.org/nr/water/aquastat/dbase/index.stm>

#### International Union for Conservation of Nature and Natural Resources (IUCN)

Number of threatened species data are extracted from the IUCN.  
<http://www.iucnredlist.org/>

#### UNdata

GDP growth rate from previous year, and GDP per capita at current prices data are retrieved from the UNdata portal. UNdata was launched by the United Nations Department of Economic and Social Affairs (DESA). It brings the various UN statistical databases within easy reach of users through a single entry point. Users can search and download a variety of statistical resources provided by the UN System.  
<http://data.un.org>

#### United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects

All 'per capita' variables use population data figures obtained from this source. Population and Percentage of population growth rate from previous year data are also retrieved from this source.  
<http://www.un.org/esa/population/>

#### United Nations Framework Convention on Climate Change (UNFCCC) Secretariat

SO<sub>2</sub> emissions, SO<sub>2</sub> per capita emissions, NO<sub>x</sub> emissions, NO<sub>x</sub> per capita emissions, GHG emissions, GHG per capita, and Percentage of GHG from energy data are obtained from the UNFCCC Greenhouse Gas Emissions Database.  
[http://unfccc.int/ghg\\_emissions\\_data/items/3800.php](http://unfccc.int/ghg_emissions_data/items/3800.php)

#### United Nations Statistics Division (UNSD) Demographic Statistics Yearbook

Total area data are extracted from this source.  
<http://unstats.un.org/unsd/demographic/products/dybr/default.htm>

#### United Nations Statistics Division (UNSD) Energy Statistics Database

Energy consumption, Energy consumption per capita, and Renewable electricity production figures are extracted from the UNSD Energy Statistics Database.  
<http://unstats.un.org/unsd/energy/default.htm>

#### United Nations Statistics Division (UNSD) Environment Statistics Database

Population served by municipal waste collection, Municipal waste collected, Hazardous waste generated, some of Long-term average renewable freshwater resources, and some of the air emissions data are extracted from the UNSD Environment Statistics Database (note: database also includes data from OECD, and Eurostat).  
<http://unstats.un.org/unsd/environment/q/indicators.htm>

#### United Nations Statistics Division (UNSD) Millennium Development Goals (MDG) Indicator Database

Proportion of terrestrial and marine areas protected, CO<sub>2</sub> emissions, CO<sub>2</sub> emissions per capita, Ozone-depleting CFCs, Energy intensity (kg oil eq.) per \$1,000 (PPP) GDP, Urban population with access to improved drinking water source, Rural population with access to improved drinking water source, Urban population with access to improved sanitation, and Rural population with access to improved sanitation data are extracted from MDG database.  
<http://mdgs.un.org/unsd/mdg/Data.aspx>

#### United Nations Statistics Division (UNSD) National Accounts Database

% value added agriculture, hunting, forestry, fishing; % value added mining, manufacturing, utilities; and % value added other data are obtained from the National Accounts Main Aggregates Database.  
<http://unstats.un.org/unsd/na/main/introduction.asp>

### Footnotes for previous page

\* Any footnotes displayed below are relevant to UNSD Environment and Energy Statistics variables only. For further information on data retrieved from other sources, please visit the original data provider.



# Environment statistics - UN Data

The screenshot displays the UNdata website interface. At the top right, there are social media links for Facebook, Twitter, and a feedback button. The main header features the UNdata logo with the tagline "A world of information". Below the logo is a navigation menu with "Data", "Glossary", "Metadata", and "More". A search bar is positioned below the menu, with a "Search" button and the text "33 databases - 60 million records" and "Update calendar".

The main content area is divided into three columns:

- Databases:** Lists "Energy" (Energy Statistics Database, UNSD) and "Environment" (Environment Statistics Database, UNSD).
- Updates:** Includes a "Follow Us On Twitter" button.
- Country data services:** Lists countries such as Afghanistan, Albania, Algeria, and Andorra.

Below these columns is a green banner for "MBS Monthly Bulletin of Statistics and other UNSD data resources" with a "Link to MBS" button. Further down are sections for "Popular searches" and "Feedback and reviews" with logos for "JOURNAL", "PC", and "CIR".

At the bottom of the page, there is a row of logos for various UN agencies, including UNESCO, ECA, ILO, UN, ITU, UNIDO, UNDP, UNHCR, UNICEF, UNCTAD, UNWTO, WHO, and WFP.

# Responsibilities of International agencies – Addressing duplication of requests and related problems

- International organizations may ask for the same or similar data/indicators, creating unnecessary burden on countries;
- Equally, more than one national organization may collect (and provide to the international organizations) the same or similar data in parallel, ending up with diverging figures for the same country;
- International organizations use different concepts, definitions and classifications that end up with apparently duplicate data requests;
- Deviations from the international definitions motivate organizations to manipulate country data to ensure comparability and as a result, there will be differences between data from international and national sources.

# Consistency Between Questionnaires

- **UNSD/UNEP Questionnaire is consistent with the OECD/Eurostat Questionnaire**
  - The UNSD questionnaire asks for less detailed information than the OECD/Eurostat questionnaire
  - The Water questionnaire is consistent with SEEA water accounts
- Any regional questionnaires should be consistent with UNSD/UNEP and OECD/Eurostat questionnaires



# Coordination

- Efforts to avoid duplication by using data available at international sources instead of asking it from the countries (however, frequently countries revise data coming from international sources)
- Sometimes duplication is apparent and unavoidable (e.g. FAO land use statistics versus UNSD land use questionnaire)

## International Coordination of Environment Statistics and minimization of reporting burden

- UNSD is actively promoting coordination between international and regional organizations through the Inter-secretariat Working Group on Environment Statistics (IWG-ENV).
  - The main objective of the IWG-ENV is the harmonization of international data and their collection. It focuses on:
    - development and harmonization of
      - methods
      - concepts, definitions and classifications
    - coordination of data collection
    - coordination of training.
- Members include: UNSD, UN-ECE, UNEP, FAO, OECD, Eurostat

# Finally

International requirements are the practical means currently available for measurement of the environment

In the words of a famous statistician:

“You cannot manage something that you cannot measure”

So let us measure

Thank you.