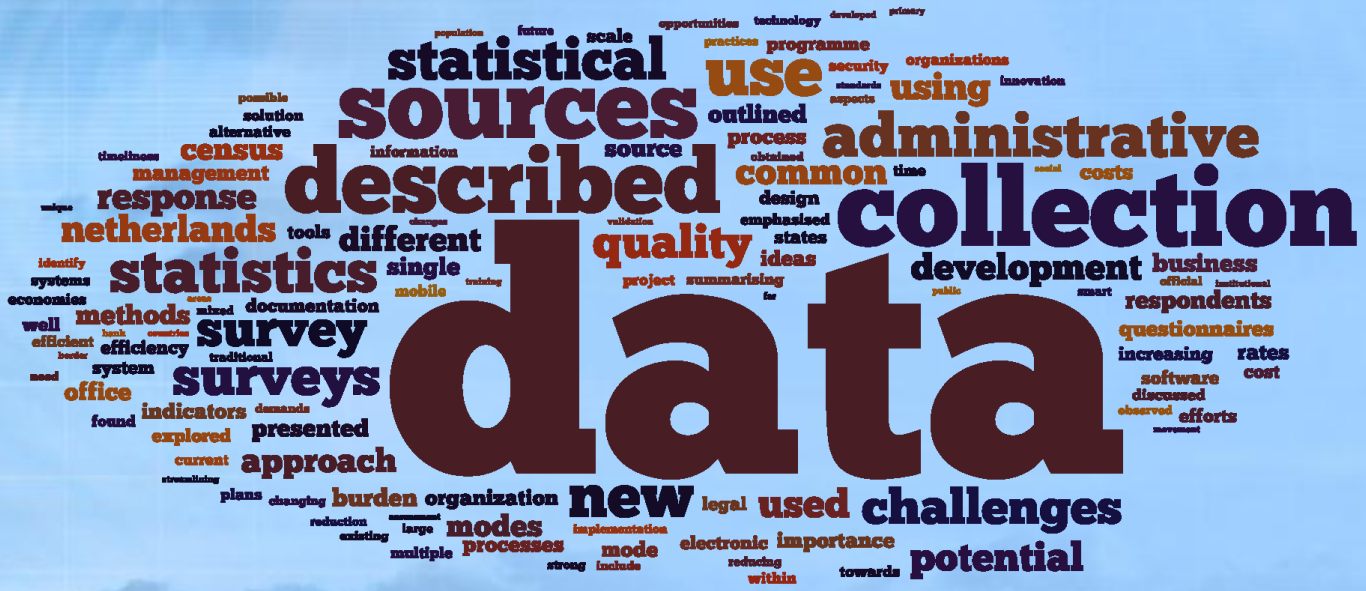
UNSD's Environment Statistics Data Collection



Third Meeting of the Expert Group on Environment Statistics (EGES)
(New York, 20-22 April 2016)

Environment Statistics Section, United Nations Statistics Division

Outline

- UNSD data collection in environment statistics
- UNSD/UNEP Questionnaire
- Data dissemination
- Conclusions

UNSD data collection in environment statistics

- Objective: to provide internationally comparable statistics on environmental issues based on standard questionnaires and methodology.
  - UNSD/UNEP Questionnaire on Environment Statistics – about 172 member states and areas in 5 languages
  - OECD/Eurostat Joint Questionnaire on the State of the Environment – their member states
- Environment Statistics Section, UNSD is responsible for the collection of environment statistics from all non-OECD/Eurostat member states upon the request of the Statistical Commission in 1999.
- UNSD/UNEP Questionnaire is consistent and harmonized with the OECD/Eurostat Questionnaire. Close collaboration is maintained on conceptual issues, validation procedures and data validation.

UNSD data collection in environment statistics (cont)

- Collaboration is also maintained with, inter alia, FAO/Aquastat (water statistics), the Basel Convention (hazardous waste), ECE and ESCWA on similar issues, including translation.

- UNSD conducted its first data collection in 1999, requesting data from 168 countries and areas. Six subsequent data collection rounds have taken place, with the most recent one in 2013 requesting data from 173 countries and areas. The next round will take place in 2016.

- UNSD/UNEP Questionnaire on Environment Statistics is sent biennially to National Statistical Offices and Ministries of Environment. The Questionnaire started with just UNSD but since 2004 it has been conducted jointly with UNEP.

- Those indicators already being collected by other UN agencies or other international institutions were excluded from the UNSD/UNEP Questionnaire on Environment Statistics, wherever possible.

- In the 1999, 2001 and 2004 data collection rounds, UNSD obtained data on air, land, waste and water, but in harmonizing with other international collections, as of 2006, UNSD has solely collected data on waste and water.

UNSD/UNEP Questionnaire on environment statistics

- UNSD/UNEP Questionnaire 2013 on Environment Statistics – 7th round sent out in 2014 (water and waste statistics)

- **Waste statistics** – The tables cover the generation of waste, the generation and treatment of hazardous waste, and the generation, collection, treatment, and composition of municipal waste.

- **Water statistics** – The tables cover renewable freshwater resources, freshwater abstraction and use, water supply industry, wastewater generation and treatment, and population connected to waste water treatment.

- UNSD/UNEP Questionnaire is linked to economic statistics through the use of ISIC Rev. 4 in several tables, and contains:
  - time series tables
  - detailed guidance section as well as relevant definitions to assist the user to complete the Questionnaire
  - extensive built-in validation procedures
  - notes section for footnotes or other references
  - supplementary sheets for additional information

Waste Questionnaire

- 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

Table R1 is linked to economic statistics through the use of ISIC Rev. 4

http://unstats.un.org/unsd/environment/questionnaire.htm

Table R1: Generation of Waste by Source

Line	Category	Unit
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t
2	Mining and quarrying (ISIC 05-09)	1000 t
3	Manufacturing (ISIC 10-33)	1000 t
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t
5	Construction (ISIC 41-43)	1000 t
6	Other economic activities excluding ISIC 38	1000 t
7	Households	1000 t
8	**Total waste generation (=1+2+3+4+5+6+7)**	1000 t

Table R2: Management of Hazardous Waste

Line	Category	Unit
1	Stock of hazardous waste at the beginning of the year	tonnes
2	Hazardous waste generated during the year	tonnes
3	Hazardous waste imported during the year	tonnes
4	Hazardous waste exported during the year	tonnes
5	**Hazardous waste treated or disposed of during the year (=6+7+9+10)**	tonnes
6	*Amounts going to:* Recycling	tonnes
7	Incineration	tonnes
8	*of which:* with energy recovery	tonnes
9	Landfilling	tonnes
10	Other, please specify in the footnote	tonnes
11	Stock of hazardous waste at the end of the year (=1+2+3-4-5)	tonnes

Table R3: Management of Municipal Waste

Line	Category	Unit
1	Municipal waste collected from households	1000 t
2	Municipal waste collected from other origins	1000 t
3	**Total amount of municipal waste collected (=1+2)**	1000 t
4	Municipal waste imported for treatment/disposal	1000 t
5	Municipal waste exported for treatment/disposal	1000 t
6	**Municipal waste managed in the country (=3+4-5)**	1000 t
7	*Amounts going to:* Recycling	1000 t
8	Composting	1000 t
9	Incineration	1000 t
10	*of which:* with energy recovery	1000 t
11	Landfilling	1000 t
12	*of which:* controlled landfilling	1000 t
13	Other, please specify in the footnote	1000 t
14	Total population served by municipal waste collection	%
15	Urban population served by municipal waste collection	%
16	Rural population served by municipal waste collection	%

Table R4: Composition of Municipal Waste

Line	Category	Unit
1	Paper, paperboard	%
2	Textiles	%
3	Plastics	%
4	Glass	%
5	Metals	%
6	Other inorganic material	%
7	Organic material	%
8	*of which*: food and garden waste	%
9	TOTAL	%

Table R5: Management of Municipal Waste – City Data

Line	Category	Unit
1	Total population of the city	1000 inh.
2	Percentage of city population served by municipal waste collection	%
3	Municipal waste collected from households	1000 t
4	Municipal waste collected from other origins	1000 t
5	**Total amount of municipal waste collected (=3+4)**	1000 t
6	*Amounts going to:* Recycling	1000 t
7	Composting	1000 t
8	Incineration	1000 t
9	*of which:* with energy recovery	1000 t
10	Landfilling	1000 t
11	*of which:* controlled landfilling	1000 t
12	Other, please specify in the footnote	1000 t

Water Questionnaire

- Water
  - W1 Renewable Freshwater Resources
  - W2 Freshwater Abstraction and Use
  - W3 Water Supply Industry (ISIC 36)
  - W4 Wastewater Generation and Treatment
  - W5 Population Connected to Wastewater Treatment
  - W6 Supplementary information sheet

Tables W2, W3 and W4 are linked to economic statistics through the use of ISIC Rev. 4

http://unstats.un.org/unsd/environment/questionnaire.htm

Table W1: Renewable Freshwater Resources

Line	Category	Unit
1	Precipitation	mio m^3/y
2	Actual evapotranspiration	mio m^3/y
3	Internal flow (=1-2)	mio m^3/y
4	Inflow of surface and groundwaters from neighbouring countries	mio m^3/y
5	**Renewable freshwater resources (=3+4)**	mio m^3/y
6	Outflow of surface and groundwaters to neighbouring countries	mio m^3/y
7	*Of which:* Secured by treaties	mio m^3/y
8	Not secured by treaties	mio m^3/y
9	Outflow of surface and groundwaters to the sea	mio m^3/y

Table W2: Freshwater Abstraction and Use

Line	Category	Unit
1	Fresh surface water abstracted	mio m^3/y
2	Fresh groundwater abstracted	mio m^3/y
3	**Freshwater abstracted (=1+2)**	mio m^3/y
	of which abstracted by:	
4	Water supply industry (ISIC 36)	mio m^3/y
5	Households	mio m^3/y
6	Agriculture, forestry and fishing (ISIC 01-03)	mio m^3/y
7	Manufacturing (ISIC 10-33)	mio m^3/y
8	Electricity industry (ISIC 351)	mio m^3/y
9	Other economic activities	mio m^3/y
10	Desalinated water	mio m^3/y
11	Reused water	mio m^3/y
12	Imports of water	mio m^3/y
13	Exports of water	mio m^3/y
14	**Total freshwater available for use (=3+10+11+12-13)**	mio m^3/y
15	**Losses during transport**	mio m^3/y
16	**Total freshwater use (=14-15)**	mio m^3/y
	of which used by:	
17	Households	mio m^3/y
18	Agriculture, forestry and fishing (ISIC 01-03)	mio m^3/y
19	*of which for:* Irrigation in agriculture	mio m^3/y
20	Manufacturing (ISIC 10-33)	mio m^3/y
21	Electricity industry (ISIC 351)	mio m^3/y
22	Other economic activities	mio m^3/y

Table W3: Water Supply Industry (ISIC 36)

Line	Category	Unit
1	**Gross freshwater supplied by water supply industry (ISIC 36)**	mio m^3/y
2	Losses during transport by ISIC 36	mio m^3/y
3	**Net freshwater supplied by water supply industry (ISIC 36) (=1-2) (=4+5+6+7+8)**	mio m^3/y
	of which supplied to:	
4	Households	mio m^3/y
5	Agriculture, forestry and fishing (ISIC 01-03)	mio m^3/y
6	Manufacturing (ISIC 10-33)	mio m^3/y
7	Electricity industry (ISIC 351)	mio m^3/y
8	Other economic activities	mio m^3/y
	Population supplied by water supply industry (ISIC 36)	
9	**Total population supplied by water supply industry (ISIC 36)**	%
10	Urban population supplied by water supply industry (ISIC 36)	%
11	Rural population supplied by water supply industry (ISIC 36)	%

Table W4: Wastewater Generation and Treatment

Line	Category	Unit
1	**Total wastewater generated**	1000 m^3/d
2	by: Agriculture, forestry and fishing ISIC (01-03)	1000 m^3/d
3	Manufacturing (ISIC 10-33)	1000 m^3/d
4	Electricity industry (ISIC 351)	1000 m^3/d
5	Other economic activities	1000 m^3/d
6	Households	1000 m^3/d
7	Wastewater treated in urban wastewater treatment plants	1000 m^3/d
8	*Of which:* Primary treatment	1000 m^3/d
9	Secondary treatment	1000 m^3/d
10	Tertiary treatment	1000 m^3/d
11	Wastewater treated in other treatment plants	1000 m^3/d
12	*Of which:* Primary treatment	1000 m^3/d
13	Secondary treatment	1000 m^3/d
14	Tertiary treatment	1000 m^3/d
15	Wastewater treated in independent treatment facilities	1000 m^3/d
16	Non-treated wastewater	1000 m^3/d
17	Sewage sludge production (dry matter)	1000 t

Table W5: Population Connected to Wastewater Treatment

Line	Category	Unit
1	**Population connected to wastewater collecting system**	%
2	**Population connected to wastewater treatment**	%
3	*of which* at least secondary treatment	%
4	Population with independent wastewater treatment (e.g., septic tanks)	%
5	Population not connected to wastewater treatment (100% - (2) - (4))	%

UNSD data validation

- To promote data quality assurance UNSD carries out extensive data validation procedures that include built-in automated procedures, manual checks and cross-references to national sources of data.
- Communication is carried out with countries for clarification and validation of data.
- UNSD does not make any estimation or imputation for missing values so the number of data points provided are actual country data.
- Only data that are considered accurate or those confirmed by countries during the validation process are included in UNSD's environment statistics database and disseminated on UNSD's website.

UNSD data collection – responses

Year:	1999	2001	2004	2006	2008	2010	2013
Count of countries sent questionnaire:	168	177	158	163	171	172	172
Number of responses (water and/or waste):	49	62	68	78	83	83	81

- Responses refer to the number of countries that provided data, either in water or waste, or both.
- Responses provide information on the actual number of countries that provided data for each variable per year.
- Although there has been a trend in more data and more countries responding, it is still insufficient given the growing demand for environment statistics.
- The gap between data points collected and validated against total potential data points reflects the relatively emerging nature of environment statistics, particularly in developing countries.
- Substantial differences can be observed in the development and availability of environment statistics when the questionnaire results are analysed at the regional level as can be seen in the table on the next slide.

UNSD data collection

Report of the Secretary-General on Environment Statistics (E/CN.3/2016/27) for the 47th session of the Statistical Commission, along with its Background Document, provide a summary of the results of the international collections of environment statistics carried out by UNSD from 1999-2013.

http://unstats.un.org/unsd/statcom/47th-session/documents/2016-27-Environment-statistics-E.pdf

http://unstats.un.org/unsd/statcom/47th-session/documents/BG-2016-27-EnvironmentStats-E.pdf

UNSD data collection – responses (cont.)

Table 2 (SG report on environment statistics - (E/CN.3/2016/27))
Number of responses and percentage of response rates by geographical region and year of data collection

	1999		2001		2004		2006		2008		2010		2013	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Africa	8	14	13	23	22	39	16	28	21	37	23	40	21	37
Asia	19	41	21	46	20	43	24	52	27	59	25	54	22	48
Europe	10	71	9	64	7	50	11	79	11	79	10	71	11	79
Latin America and the Caribbean	11	28	18	45	19	48	27	68	23	58	25	63	27	68
Oceania	1	7	1	7	–	–	–	–	1	7	–	–	–	–
Total	**49**	**29**	**62**	**35**	**68**	**43**	**78**	**48**	**83**	**49**	**83**	**48**	**81**	**47**

	1999	2001	2004	2006	2008	2010	2013
Countries that received the questionnaire	168	177	158	163	171	172	173

The Background Document to the Statistical Commission contains detailed tables (pgs. 6-15) that present the number of responses to all variables in the latest data collection round (the 2013 collection round) for the years 2000 to 2012 for both water and waste respectively.

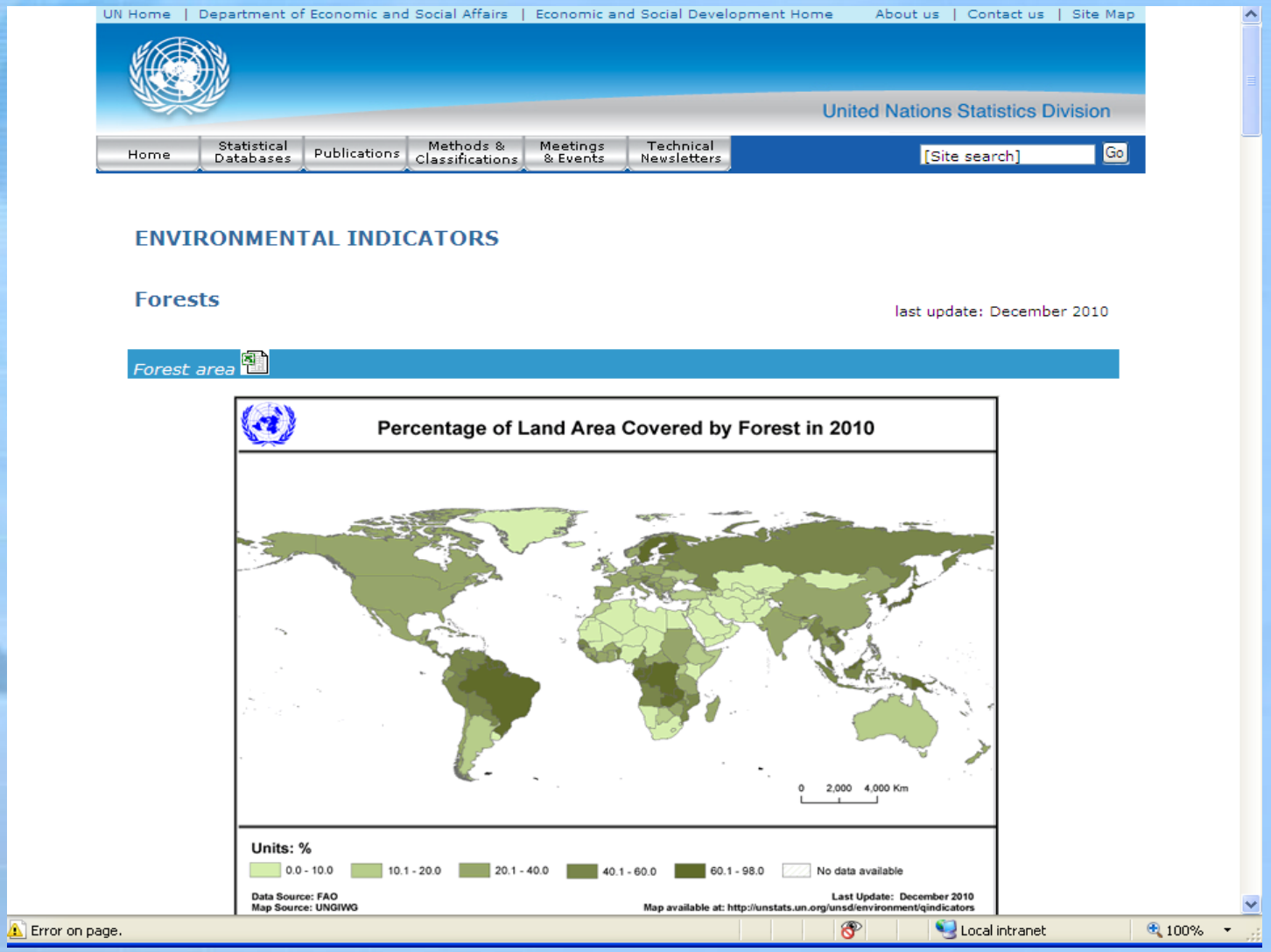
UNSD data dissemination

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)
- Environment statistics in UNData (http://data.un.org/)

UNSD Environmental Indicators

Environmental Indicators – Forest area



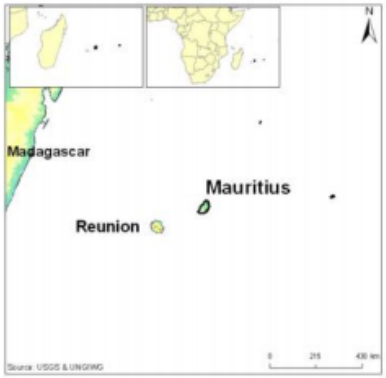
Country Snapshot – Mauritius

Environment Statistics Country Snapshot

Mauritius

Air and climate

Emissions of:		Year
SO_2 (1000t)	11	2006
SO_2 per capita (kg)	9	2006
NO_x (1000t)	15	2006
NO_x per capita (kg)	12	2006
CO_2 (million tonnes)	4	2009
CO_2 per capita (tonnes)	3	2009
GHG (million tonnes CO_2 eq.)	5	2006
GHG per capita (tonnes CO_2 eq.)	4	2006
Consumption of ozone depleting CFCs (ODP t)	0	2009



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

		Year
Proportion of terrestrial and marine areas protected (%)	1	2010
Number of threatened species	224	2011
Fish catch (tonnes)	7 786	2010
Change in fish catch from previous year (%)	1	2010

Economy

GDP growth rate from previous year (%)	4	2011
GDP per capita (at current prices - $US)	8 659	2011
% Value added: agriculture, hunting, forestry, fishing	4	2011
% Value added: mining, manufacturing, utilities	20	2011

Energy

Energy consumption (1000t oil eq.)	1 174	2009
Energy consumption per capita (kg oil eq.)	909	2009
Energy use intensity (kg oil eq.) per $1,000 GDP (Constant 2005 PPP$)	86	2007
Renewable electricity production (%)	5	2009

Land and agriculture

Total area (sq km)	1 969	2011
Agricultural land (sq km)	890	2011
Arable land (% of agric. land)	0	2011
Permanent crops (% of agric. land)	4	2011
Permanent meadows and pastures (% of agric. land)	8	2011
Change in agricultural land area since 1990 (%)	-20	2011
Forest area (sq km)	350	2011
Change in forest area since 1990 (%)	-10	2011

Population

Population (1000)	1 299	2010
Population growth rate from previous year (%)	1	2010

Waste

Total population served by municipal waste collection (%)	98	2009
Municipal waste collected (1000t)	408	2009
Hazardous waste generated (1000t)	4	2008

Water and sanitation

Long-term average renewable freshwater resources (mio m^3/yr)	2 590	N / A
Urban population with access to improved drinking water source (%)	100	2010
Rural population with access to improved drinking water source (%)	99	2010
Urban population with access to improved sanitation (%)	91	2010
Rural population with access to improved sanitation (%)	88	2010

http://unstats.un.org/unsd/environment/Questionnaires/country_snapshots.htm

Snapshot – Mauritius

Environment Statistics Country Snapshot

Last updated: *February 2013*

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. UNSD is not responsible for the quality, completeness / availability, and validity of data obtained from other data providers. Original sources should be cited when Environment Statistics Country Snapshot 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 meadows and pastures, 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 (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 Statistics Division (UNSD) of the 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 obtained from this source. *Population* and *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_2 emissions, SO_2 per capita emissions, NO_x emissions, NO_x per capita emissions, GHG emissions and GHG per capita are obtained from the UNFCCC Greenhouse Gas Emissions Database.
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/dyb/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
Total population served by municipal waste collection, Municipal waste collected, Hazardous waste generated and some of *Long-term average renewable freshwater resources* data are extracted from the UNSD Environment Statistics Database (note: database also includes data from OECD and Eurostat).
http://unstats.un.org/unsd/environment/qindicators.htm

United Nations Statistics Division (UNSD) Millennium Development Goals (MDG) Indicator Database
Proportion of terrestrial and marine areas protected, CO_2 emissions, CO_2 emissions per capita, Consumption of ozone-depleting CFCs, Energy use 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 the MDG database.
http://mdgs.un.org/unsd/mdg/Data.aspx

United Nations Statistics Division (UNSD) National Accounts Database
% value added - agriculture, hunting, forestry, fishing; and % value added - mining, manufacturing, utilities are obtained from the National Accounts Main Aggregates Database, according to the International Standard Industrial Classification of All Economic Activities (ISIC).
http://unstats.un.org/unsd/snaama/introduction.asp

Environment statistics - UN Data

UNSD data collection – Conclusion

- Data completeness and data quality remain a challenge (in particular for developing countries).
- National capacity constraints (financial, human, technical) continue to be a concern for many countries.
- There still remains inadequate institutional set-up and collaboration in environment statistics.
- Capacity building is key to improving environment statistics and the Environment Statistics Section of UNSD is assisting countries in strengthening their statistical capacity through training workshops and direct country assistance.
- Given the importance of producing national data on water and waste for quality and informed decision-making, and that these data are extremely pertinent to monitoring the SDGs, it is critical to improve the production of environment statistics.

Thank you for your attention!

Please contact us:
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E-mail: envstats@un.org
website: http://unstats.un.org/unsd/environment/default.htm