Inter-organization Water Statistics Harmonization on the UN-Water Key Water Indicator Portal

Introduction

This document is intended to shed light on the data streams from country level sources, through various UN-Water agencies, and ultimately to the Key Water Indicator Portal (KWIP).

The following indicators are displayed on the KWIP:

	Indicator
1	Total actual renewable water resources per capita
2	Dam capacity per capita
3	Percent of freshwater resources withdrawn
4	Sectoral withdrawal as a percent of total withdrawal (agricultural, industrial, municipal)
5	Percent of population with access to improved water sources
6	Percent of population with access to improved sanitation

International Agencies involved in the UN-Water Indicators

The following provides a brief overview on the agencies that generate data used in the KWIP. Your attention is drawn to the fact that information is being gathered from different government institutions, in different regions, and for different purposes. This presents the network of information that is sewn together in the KWIP.

- ***AQUASTAT Programme of the Food and Agriculture Organization of the United Nations (FAO)***

Website: http://www.fao.org/nr/aquastat

Data: http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en

Metadata: http://www.fao.org/nr/water/aquastat/metadata/index.stm

About: AQUASTAT is FAO's global information system on water and agriculture, developed by the Land and Water Division. The main mandate of the programme is to collect, analyze and disseminate information on water resources, water uses, and agricultural water management with an emphasis on countries in Africa, Asia, Latin America and the Caribbean. This allows interested users to find comprehensive and regularly updated information at global, regional, and national levels.

Coverage: Global, with a special focus on Africa, Asia, Latin America and the Caribbean

Data sources: Technical ministries (Agriculture, Water, Environment)

Contributes to Indicators: 1, 2, 3, 4 **(Official reporting organization)** (Dam capacity, water resources and water uses)

Data adjustment[1]: AQUASTAT performs adjustments on data. Adjusted data is accompanied with a flag (or qualifier) in the AQUASTAT database, such that it can be easily identified.

- ***United Nations Statistics Division (UNSD) of the United Nations Department of Economic and Social Affairs (UNDESA)***

Website: http://unstats.un.org/unsd/environment/default.htm

Data: http://unstats.un.org/unsd/environment/qindicators.htm

Metadata: http://unstats.un.org/unsd/environment/questionnaire.htm (Currently, the metadata only include definitions of the terms used, which can be found in the most recent Questionnaire on this website)

About: The Statistics Division is committed to the advancement of the global statistical system. It compiles and disseminates global statistical information, develops standards and norms for statistical activities, and supports countries' efforts to strengthen their national statistical systems. It facilitates the coordination of international statistical activities and supports the functioning of the UN Statistical Commission as the apex entity of the global statistical system.

The collection of water statistics is part of UNSD's programme on environment statistics and carried out via a biennial questionnaire. The data collection is a joint activity with UNEP. Selected data and indicators are reported on the UNSD website together with data from FAO (water resources only) Eurostat and OECD, aiming at global coverage.

Coverage: Non OECD, non EU countries.

Data sources: National statistical offices and ministries of environment or equivalent institutions.

Contributes to Indicators: 1, 3, 4 (Water resources and water uses)

Data adjustment: Adjustments are not performed. All data reported comes from the data sources named above and an extensive validation process is carried out between UNSD and the reporting institutions. Data failing quality control is not published.

- ***Eurostat (European Commission, (EC)***

Note: The EC and OECD are different institutions, but they are listed together since both obtain data from the Joint Questionnaire, and report data on their websites.

Website: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

Data: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

[1] For the purposes of this document, "adjustment" does not mean "subsequent modification or backchanging", but more "reporting values slightly different than country-reported values in order to maximize international consistency".

Metadata: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/env_wat_esms.htm[2]

About: Eurostat is the statistical office of the European Union. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.

Coverage: European Union (EU) states, EU candidate accession countries, and for most activities countries within the European Free Trade Association (EFTA), but not within the EU.

Data sources: National Statistical Offices and other national institutions entrusted with the establishment of official statistics, e.g. environment ministries.

Contributes to Indicators: 1, 3, 4 (Water resources and water uses)

Data adjustment: Adjustments are not performed. Data failing quality control is not inserted, but all data reported comes from official national sources (cf. 'data sources' above).

- ***OECD.Stat of the Organization for Economic Co-operation and Development (OECD)***

Website: http://www.oecd.org

Data: http://www.oecd.org/document/0,3746,en_2649_201185_46462759_1_1_1_1,00.html

About: The mission of the Organisation for Economic Co-operation and Development (OECD) is to promote policies that will improve the economic and social well-being of people around the world.

Coverage: OECD countries

Data sources: National Statistical Offices and other national institutions entrusted with the establishment of official statistics, e.g. environment ministries.

Contributes to Indicators: 1, 3, 4 (Water resources and water uses)

- ***Joint Monitoring Programme (JMP), managed jointly by World Health Organization (WHO) and the United Nations Children's Fund (UNICEF)***

Website: http://www.wssinfo.org/

Data: http://www.wssinfo.org/data-estimates/introduction/

Metadata: http://www.wssinfo.org/definitions-methods/introduction/ or consult UNSD official MDG website for target 7c metadata: http://mdgs.un.org/unsd/mdg/Metadata.aspx

About: The WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation is the official United Nations mechanism tasked with monitoring progress towards the Millennium Development Goal (MDG) relating to drinking-water and sanitation (MDG 7, Target 7c), which is to: "Halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation".

Coverage: World.

[2] Database includes many themes, the link provided pertains only to environmental statistics

Data sources: Country level surveys, censuses or administrative records (when no survey or census is available, applicable mostly to developed countries)

Contributes to Indicators: 5, 6 **(Official reporting organizations)** (population with access to improved water sources and improved sanitation)

Data adjustment: All data is estimated based on country level surveys.

- ***United Nations Population Division (UNPD) of the United Nations Department of Economic and Social Affairs (UNDESA)*** [3]

Website: http://www.un.org/esa/population/

Data: http://esa.un.org/unpd/wpp/unpp/panel_population.htm

About: The Population Division is responsible for monitoring and appraisal of the broad range of areas in the field of population.

Coverage: World.

Data sources: Country level Censuses, National Statistical Offices or institutes.

Contributes to Indicators: 1,2,5,6 (Population)

Data adjustment: All data is modelled based on country level information.

Variables and Indicators

In addition to the differences in data collection methodologies, the variables collected by all agencies are slightly different, since each organization's mandate is also different. This section explains how this process is carried out. For additional information, kindly refer to each organization's glossary or website.

1. Water resources per capita

This indicator is calculated as Total renewable water resources divided by Total population. Total renewable water resources are quantified by AQUASTAT, Eurostat, OECD, and UNSD. The following table shows the naming convention attributed to this variable.

Eurostat/OECD	AQUASTAT	UNSD
Total fresh water resources	Water resources: total renewable (actual)	Renewable freshwater resources

While the concepts are equivalent, there are differences in how each organization calculates these. The most notable is that water treaties between upstream and downstream countries are included for AQUASTAT, but not for Eurostat/OECD and UNSD. While this doesn't particularly pose a problem for most of the world, this is an issue that is actively being worked on.

Eurostat uses population figures from its European demography statistics, all other organizations use population statistics as calculated by UNPD. While the KWIP does display AQUASTAT as a source of

[3] UNPD is displayed here because it is the official population source for most of the organizations involved.

population, this data is from UNPD, slightly modified by FAOSTAT of FAO to be more appropriate to agricultural concepts.

2. Dam capacity per capita

This variable is harmonized by AQUASTAT only against sources not viewable to the public; therefore no additional details are available

3. Percent of freshwater resources withdrawn

"Percent of freshwater resources withdrawn" is an indicator that represents the Freshwater withdrawal over the Total renewable water resources. This indicator is named "Water Exploitation Index" by Eurostat and the EEA. "Withdrawal" or "Abstraction" are not to be confused with the terms "use" or "consumption", both of which refer to different concepts. For terminology differences between agencies, kindly refer to the table below. The underlying variables are quantified by AQUASTAT, Eurostat, OECD and UNSD.

The following table shows the naming convention (please note that withdrawal and abstraction are synonymous):

Eurostat/OECD	AQUASTAT	UNSD
Total gross freshwater abstraction	Total freshwater withdrawal (primary and secondary)	Total gross freshwater abstraction
Total fresh water resources	Water resources: total renewable (actual)	Renewable freshwater resources

Total water resources are discussed under Indicator 1.

Total freshwater abstraction is also slightly different across agencies in that the concept of secondary freshwater (water that has been used and returned to water systems) is included with primary freshwater (water that has not been used before) for AQUASTAT, whereas Eurostat, OECD and UNSD add secondary water as part of non-conventional water sources. This situation is being actively discussed.

4. Sectoral withdrawal (Agricultural, Industrial, Municipal) as a percent of total withdrawal

Withdrawal here is synonymous to abstraction (see table above).

FAO calculates these indicators as the withdrawal by each sector (agricultural, municipal, and industrial), divided by the Total water withdrawal. These variables are quantified by AQUASTAT, Eurostat, OECD and UNSD although some agencies provide a different level of disaggregation than these three.

The following table shows the mapping convention utilized in the KWIP. Multiple items in one box imply the addition of the variables listed.

Eurostat/OECD	AQUASTAT	UNSD
Self supply -> Supply to the domestic sector, services Self supply -> Supply to the domestic sector, households Total surface and ground water -> Abstraction by public water supply	Municipal water withdrawal	Gross freshwater supplied by water supply industry (ISIC 36) Freshwater Abstraction: Households [Gross freshwater]
Self supply -> Supply to all industrial activities	Industrial water withdrawal	Freshwater Abstraction: Manufacturing (ISIC 10-33) [Gross freshwater] Freshwater Abstraction: Electricity industry (ISIC 351) [Gross freshwater] Freshwater Abstraction: Other economic activities [Gross freshwater]
Self supply -> Supply to agriculture, forestry, fishing (total)	Agricultural water withdrawal	Freshwater Abstraction: Agriculture, forestry and fishing (ISIC 01-03) [Gross freshwater]

The most marked difference is that UNSD, OECD and Eurostat use the International Standard Industrial Classification for All Economic Activities (ISIC) and its EU equivalent NACE to disaggregate water use, whereas AQUASTAT uses the categories ”municipal”, “industrial” and “agricultural”. The values stated above are only the contributions to each sector from freshwater, without including from desalinated water or directly used treated wastewater. Users are cautioned to understand that OECD and Eurostat numbers quoted here may be slightly lower than values from AQUASTAT.

For the time being, UNSD data are not included under this indicator.

5. Percent of population with access to improved water sources

This variable does not undergo inter-agency harmonization.

6. Percent of population with access to improved sanitation

This variable does not undergo inter-agency harmonization.