Global Water Tool
External Dataset Details

August 2011

The external datasets used in the tool were developed by:

Food and Agriculture Organization (FAO) AQUASTAT	Country
World Health Organization and UNICEF Joint Monitoring Program (JMP)	Country
United Nations Population Division (UNDESA)	Country
University of New Hampshire (UNH)	Watershed
World Resources Institute (WRI)	Watershed
International Water Management Institute (IWMI)	Watershed
Conservation International (CI)	Watershed

The dataset owners gave permission to the WBCSD to employ the datasets in the Global Water Tool. The original datasets have not been modified and are publicly available.

The datasets were selected from the wide range of available water data in the public domain to meet all of the following criteria:

- Dataset must have global coverage
- Dataset must be available in the public domain
- Dataset must be considered valid by the global community of water stakeholders including academics, non-governmental organizations (NGOs), government organizations and industry
- Dataset must be recent
- Dataset updates are planned

Details of the external datasets employed in the WBCSD Global Water Tool are provided below. The definitions have been simplified in some cases; complete definitions can be obtained from the data owners' respective websites.

*Note: We have noted in the last column whether the datasets have been **Updated (U)** or are **New (N)** compared to the 2009 version of the Global Water Tool.*

FAO AQUASTAT (Country data)

www.fao.org/nr/water/aquastat/main/index.stm

The Food and Agriculture Organization (FAO) of the United Nations leads international efforts to defeat hunger. AQUASTAT is the FAO global information system on water and agriculture developed by the Land and Water Development Division. AQUASTAT collects, analyzes and disseminates data and information by country and by region.

More information on definitions: **www.fao.org/nr/water/aquastat/data/glossary/search.html**

Data – with date of data	**Unit**	**Description**	**U/N**
Total internal renewable – 2006 (IRWR)	10^9 m^3/year	Long-term average annual flow of rivers and recharge of aquifers generated from endogenous precipitation.	
Total internal renewable per person – 2008 (IRWR/person)	m^3/person/year	Total annual internal renewable water resources per inhabitant.	U
Total external renewable – 2006 (actual)	10^9 m^3/year	The part of the country's annual renewable water resources that is not generated in the country.	
Total renewable – 2006 (actual) (TRWR)	10^9 m^3/year	The maximum theoretical yearly amount of water actually available for a country at a given moment.	
Total renewable per person – 2008 (actual) (TRWR/person)	m^3/person/year	Total annual actual renewable water resources per inhabitant.	U
Projected total renewable per person (actual) (TRWR/person) – 2025 and 2050	m^3/person/year	Projected total annual actual renewable water resources per inhabitant not taking into consideration climate change (2025, 2050).	N
Dependency ratio – 2006	%	Indicator expressing the percent of total renewable water resources originating outside the country. A country with a dependency ratio equal to 0% does not receive any water from neighboring countries. A country with a dependency ratio equal to 100% receives all its renewable water from upstream countries, without producing any of its own. Dependency ratio can be a good indicator of where tension and conflict over water-sharing and use can occur.	

Data – with date of data	Unit	Description	U/N
Agricultural water withdrawal as part of total water withdrawal – around 2002	%	Agricultural water withdrawal as percentage of total water withdrawal.	
Municipal water withdrawal as part of total water withdrawal – around 2002	%	Municipal water withdrawal as percentage of total. It refers to withdrawal of water that is connected to the public network.	
Industrial water withdrawal as part of total water withdrawal – around 2002	%	Industrial water withdrawal as percentage of total water withdrawal. It refers to self-abstraction, i.e. withdrawal of water that is not connected to the public network	
Total water withdrawal per person – around 2002	m^3/person/year	It includes renewable freshwater resources as well as potential over-abstraction of renewable groundwater or withdrawal of fossil groundwater and eventual use of desalinated water or treated wastewater. It does not include other categories of water use, such as for hydropower, mining, recreation, navigation, fisheries, etc., which are sectors that are characterized by a very low net consumption rate.	
Total freshwater withdrawal (surface water + groundwater)	10^9 m^3/year	This is the sum of surface water withdrawal and groundwater withdrawal.	
Total freshwater withdrawal as % of TRWR – around 2002	%	Total freshwater withdrawn in a given year, expressed in percentage of the actual total renewable water resources. This parameter is an indication of the pressure on the renewable water resources.	
Desalinated water produced – 2005	10^9 m^3/year	Water produced annually by desalination of brackish or salt water. It is estimated annually on the basis of the total capacity of water desalination installations.	N

WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) (Country data)

http://www.wssinfo.org/definitions/introduction.html

The goals of the JMP are to report on the status of water supply and sanitation and to support countries in their efforts to monitor this sector, which will enable better planning and management. The data collected for JMP come from two main sources: assessment questionnaires and household surveys.

Population total – 2008	number		U
Urban population – 2008	%	Percentage of total.	U
Rural population – 2008	%	Percentage of total.	U
Proportion of total population served with improved water – 2008	%	An improved drinking-water source is defined as one that, by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with fecal matter.	U
Proportion of Urban population served with Improved Water – 2008	%		U
Proportion of Rural population served with Improved Water – 2008	%		U
Proportion of Total population served with Improved Sanitation – 2008	%	An improved sanitation facility is defined as one that hygienically separates human excreta from human contact.	U
Proportion of Urban population served with Improved Sanitation – 2008	%		U
Proportion of Rural population served with Improved Sanitation – 2008	%		U

Population Division of the Department of Economic and Social Affairs of the UN Secretariat (Country data)

http://www.un.org/esa/population/unpop.htm and **http://esa.un.org/unpd/wup/index.htm**

Since 1988 the Population Division of the Department of Economic and Social Affairs of the United Nations has been issuing every two years revised and updated estimates and projections of the urban and rural populations of all countries in the world and of their major urban agglomerations.

Urban annual growth rate for 2010 – 2015	%	Average national exponential rate of growth of the urban population over a given period (2010-2015). It is expressed as a percent.	N

World Resources Institute (WRI) (Watershed data)

http://www.wri.org/biodiv/pubs_description.cfm?pid=3056 and http://pdf.wri.org/pagemaps/page_freshwater_maps.pdf

The Per Capita Water Supply data for 1995 and projections for 2025 were obtained from the Pilot Analysis of Global Ecosystems: Freshwater Systems. Washington DC: WRI produced by Revenga, C., J. Brunner, N. Henninger, K. Kassem, and R. Payne. 2000.

The WRI grants permission at no charge to the World Business Council for Sustainable Development to use the WRI's Per Capita Water Supply data and maps for 1995 and projection for 2025.

Permission includes the maps and supporting data ranges. GIS data provided may be redrawn, but may not be distributed in raw form to other information providers or used in other databases, publications, or electronic presentations without express permission from WRI.

Annual Renewable Water Supply per Person – 1995	m^3/person/year	Indicates the average annual renewable water supply per person for individual river basins as of 1995. Water experts define areas where per capita water supply drops below 1,700 m^3/year as experiencing “water stress” – a situation in which disruptive water shortages can frequently occur. These estimates were developed by dividing global runoff values at the river basins level by the population of each basin for 1995. The global runoff database is based on a water balance model driven by climate variables (e.g. temperature and precipitation) and calibrated with observed discharge data from monitoring stations. The model also takes into account information on variables on land cover and soil type.	

Annual Renewable Water Supply per Person by Projections – 2025	m^3/person/year	Indicates the average annual renewable water supply per person for individual river basins as projected for 2025. Water supply is calculated based on the water balance model described for the 1995 data. Populations projections are based on national middle-range growth rate estimates from the UN Population Division, based on the population in each river basin for 1995. Water experts define areas where per capita water supply drops below 1,700 m^3/year as experiencing "water stress" – a situation in which disruptive water shortages can frequently occur.	

University of New Hampshire, USA – UNH (Watershed data)

http://wwdrii.sr.unh.edu/download.html

The Water Systems Analysis Group was founded at the University of New Hampshire in 1999. The group is dedicated to analysis of the critical global change issue of water systems and their alteration by anthropogenic activities.

The UNH Water Systems Analysis Group has developed a compendium of Earth System and socioeconomic databases describing the current state of global water resources, including associated human interactions and pressures. The group has integrated a wide array of satellite-derived and land-based monitoring products from around the world with regional and country-level socioeconomic data.

Mean Annual Relative Water Stress Index – 2000	No unit	Indicator based on the ratio of human water use (sum of domestic, industrial and agricultural, in km^3 per year) to renewable water resources (Q) for 1995 (in km^3 per year) at 30 minute (latitude by longitude) resolution. A ratio of 0.4 or greater indicates conditions of water stress.	

International Water Management Institute (Watershed data)

www.iwmi.cgiar.org

IWMI is one of 15 international research centers supported by the network of 60 governments, private foundations and international and regional organizations collectively known as the Consultative Group on International Agricultural Research (CGIAR). It is a non-profit organization with a staff of 350 and offices in over 10 countries across Asia and Africa and Headquarters in Colombo, Sri Lanka.

IWMI targets water and land management challenges faced by poor communities in the developing world/or in developing countries and through this contributes towards the

achievement of the UN Millennium Development Goals (MDG) of reducing poverty, hunger and maintaining a sustainable environment.

Environmental Water Scarcity Index by Basin		Indicator based on the WaterGAP water balance model that calculated the ratio of human water use (sum of domestic, industrial and agricultural) to renewable water resources. Environmental water scarcity refers to cases where the amount of water removed from the system for human use puts the ecosystem at risk by tapping into the environmental water demand – that is, the amount of water needed to sustain the integrity of the freshwater ecosystem.	N
Areas of physical and economic water scarcity		4 categories: 1) Little or no water scarcity: Abundant water resources relative to use, with less than 25% of water from rivers withdrawn for human purposes. 2) Physical water scarcity: Water resources development is approaching or has exceeded sustainable limits. More than 75% of river flows are withdrawn for agriculture, industry and domestic purposes (accounting for recycling of return flows). 3) Approaching physical water scarcity: More than 60% of river flows are withdrawn. These basins will experience physical water scarcity in the near future. 4) Economic water scarcity: Human, institutional and financial capital limit access to water even though water in nature is locally available to meet human demands. Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.	N

Conservation International (CI) (Watershed data)

http://www.biodiversityhotspots.org/xp/Hotspots/resources/pages/maps.aspx

The biodiversity hotspot map shows regions of global conservation importance defined by the presence of high levels of threat (at least 70% habitat loss) in areas with high levels of species endemism (at least 1,500 endemic plant species).

The reference is: Mittermeier, R.A., Robles Gil, P., Hoffman, M., Pilgrim, J., Brooks, T., Mittermeier, C.G., Lamoreux, J. and da Fonseca, G.A.B. 2004. Hotspots Revisited: Earth's Biologically Richest and Most Threatened Terrestrial Ecoregions. CEMEX, Mexico.

For more information, see the ‘biodiversity bonus’ document on the Global Water Tool website.