

Aquastat data

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Most of the data used in the water preprocessor comes from the AQUASTAT database. <http://www.fao.org/nr/water/aquastat/main/index.stm>

The AQUASTAT database can be queried on-line and the query results can be downloaded in CSV (table or flat) format. The current database regroups data per 5-year period and shows for each variable the value for the most recent year during that period, if available. For example, if for the period 2003-2007 data are available for the year 2004 and for the year 2006, then the value for the year 2006 is shown. Also, for many variables no time series can be made available yet due to lack of sufficient data. Data collection began in 1958.

Data for the variable [4313] "Area equipped for irrigation: total" is collected by and available in both AQUASTAT and FAOSTAT and harmonization between AQUASTAT and FAOSTAT takes place on a regular basis to ensure consistency between the two. The difference between the two is that AQUASTAT only enters data for the year given in the reference, while FAOSTAT fills all years from 1961 onwards by inter- and extrapolation from the common data-points. Thus, time series on this variable can be found under FAOSTAT land, choosing the last variable in "items": Total area equipped for irrigation. For other non-water related time-series on food and agriculture see the FAOSTAT home page.



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Metadata

Update Frequency

Varies by Main Database category and sub-category:

1. Geography and population category: Every year (through FAOSTAT for land use and population and undernourishment, World Bank for GDP, UNDP for HDI and GII).
2. Water resources category: These are long-term average annual values and therefore remain the same over the years. A comprehensive review had been undertaken in 2014.
3. Water use category and Irrigation and drainage development category: For Africa, Southern and Central America & Caribbean, and Asia: between 1 and 10 years, depending on data availability which is checked at least every 5 years for each country, and with a thorough update (full dataset) every 10 years together with the country profile update. For Europe, Northern America, Australia and New Zealand: depends on data availability from Eurostat and OECD.
4. Updates of data for some specific sub-categories are being done in collaboration with others, as and when data become available, such as: wastewater sub-category in collaboration with IWMI; conservation agriculture sub-category in collaboration with Conservation Agriculture expert groups; access to improved drinking water source sub-category data are provided by the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.
5. Some of the variables are updated during major review exercises (see the other datasets below).

AquaStat Questionnaires and Guidelines

AQUASTAT uses questionnaires and prepares guidelines with detailed definitions and instructions, implements projects to strengthen national capacities, and holds workshops to clarify some of the more complex data concepts. Survey information is as follows:

To reach the above objective, it has been decided to proceed as follows, with two surveys:

- Every 5-10 years: a detailed global survey to prepare/update country profiles and regional syntheses. This document refers to this survey, which is prepared on the basis of a detailed questionnaire filled in at country level by national and regional experts, under the supervision of FAO/NRL.
- Every year: a small global survey to ensure regular updating of the existing country profiles, of key changes at country level, especially on the area equipped for irrigation and on the institutional and policy aspects. It is done by concerned institutions, which are willing to participate, and is managed in the regional and central offices of FAO.

The 5-10 year survey aims at preparing national country profiles in a homogeneous way. It ensures participation of national experts, in charge of the information collection and report drafting at the country level, and validation by FAO experts. The experts are provided with:

- A detailed questionnaire to be completed for each country at national level (and sub-national level for some variables) on the basis of existing available information
- Detailed guidelines for preparing a country profile and gathering qualitative information
- Explanatory notes and definitions to ensure consistency in the use of concepts and words and facilitate computation

Costs

Costs should be expressed in US\$ (United States Dollars) in the questionnaire and country profiles. The conversion used to pass from the local currency to US\$ should be the one that was valid in the year to which the value refers and should be indicated in the comments.

Definitions

Definitions for every series can be found in this document: http://www.fao.org/nr/water/aquastat/sets/aq-5yr-guide_eng.pdf

DataDict

Variable: Names were not changed from previous years this data was pulled. New variables were assigned names that are consistent with variables of similar topics.

Table: These were not changed from previous years this data was pulled. New variables were assigned based on the variable title and consistency.

Groups: These were not changed from previous years this data was pulled. New variables were assigned groups based on consistency with variables of similar topics. New Irrigation series were given groups: Agriculture, Infrastructure, Water.

Subgroups: These were not changed from previous years this data was pulled. New Irrigation data was given the Subgroup: Irrigation.

Definitions and Units: These categories were not changed from previous years. New variables were given definitions based on the concise definitions provided in the AquaStat database. Units were also provided in the data base.

Years: Years for every series were changed to available data provided through the database. Years vary between different series. The aquastat database calculates years in 5 year increments. These five year increments go back to 1958. The most recent increment is 2013-2017. In the datadict, these incremental periods are not used. Instead, only actual data recorded for the earliest specific year to the last specific year is used.

Source: Source for all AquaStat series were given AQU BATCH PULL.

Original Source: The original source for all series is the AquaStat database.

Notes and Last IFs Update were updated accordingly.

Aggregation: Aggregations were not changed from previous updates. New variables were assigned aggregations based on the type of variable and the Units used.

Disaggregation was consistently GDP.

Name in source is based on the name each variable was given in the AquaStat database.

Code in Source: All codes were changed to match the exact variable names present when downloading the data from the database. The downloaded names were different from the name in source.

Decimal places: This category was left blank in order to avoid rounding exact data.

Country Concordance: FAO countries were used.

Series Updated

DataDict

Variable
DesalinatedWater
IrrigatedCropIntensity
IrWaterReq
IrWaterWith
LandCultivatedArea
LandEquipIrActual
LandEquipIrFullControl
LandEquipIrFullControlActual
LandIr%Grain
LandIrAreaSalinized
LandIrEquipDrained
LandIrEquipGround
LandIrHarvestedCropArea
LandIrWaterLogged
TotalDamCapacity
WasterwaterTreated
WasteWaterDirectNotTreated
WastewaterIrDirectTreated
WasteWaterLandEquipDirectNotTreated
WasteWaterLandEquipDirectTreated
WastewaterProduced
WastewaterTreatedReused
WaterDependencyRatio
WaterDesalinated
WaterGroundEntering
WaterGroundLeaving
WaterGroundProdInternal
WaterGroundTotal
WaterGroundWithD

WaterResExploitGround
WaterResExploitSurface
WaterResOverlap
WaterResTotalExploit
WaterResTotalRenew
WaterResTotalRenewGround
WaterResTotalRenewSurface
WaterSurfaceWithD
WaterTotalRenewPC
WaterTotalWithd
WaterTotalWithdPC
WaterTotalWithdSector
WaterTotalWithdSources
WaterWith%Agric
WaterWith%Fresh
WaterWith%Household
WaterWith%Ind
WaterWithAgr%FreshAquastat
WaterWithdAgriculture
WaterWithdIndustrial
WaterWithdMunicipal

Series that will soon be updated

DataDict

Variable
LandIrActual%Equip
LandIrAreaEquip
LandIrEquip%Cultivated
LandIrEquip%Potential
LandIrEquip%WaterManaged
LandIrEquipActual
LandIrEquipMixed
LandIrEquipSurface
LandIrPotential
WaterTotalAgManagedArea

New Series added

- Direct use of not treated municipal wastewater for irrigation purposes
- Irrigated crop intensity
- Area equipped for irrigation by surface water
- Area equipped for irrigation by groundwater

- Area equipped for irrigation by mixed surface water and groundwater
- Area equipped for irrigation by direct use of treated municipal wastewater
- Area equipped for irrigation by direct use of non-treated municipal wastewater
- Area equipped for irrigation by direct use of agricultural drainage water
- Area equipped for irrigation by desalinated water
- Irrigation water withdrawal
- Irrigation water requirement
- Direct use of treated municipal wastewater for irrigation purposes
- area equipped for irrigation: actually irrigated
- area equipped for full control irrigation: total
- Area equipped for full control irrigation: actually irrigated

Preprocessor Series

Unknown since the model is currently in development

Country Coverage

Every country, with the exception of Kosovo, is included in the database. However, available data for each country varies by series.

FAO Country Translation

IFs Countries	FAO Countries
United Arab Emirates	United Arab Emirates
Afghanistan	Afghanistan
Albania	Albania
Armenia	Armenia
Angola	Angola
Argentina	Argentina
Austria	Austria
Australia	Australia
Azerbaijan	Azerbaijan
Bosnia and Herzegovina	Bosnia and Herzegovina
Barbados	Barbados
Bangladesh	Bangladesh
Belgium	Belgium
Burkina Faso	Burkina Faso
Bulgaria	Bulgaria
Bahrain	Bahrain
Burundi	Burundi
Benin	Benin
Brunei	Brunei Darussalam
Bolivia	Bolivia (Plurinational State of)

Brazil	Brazil
Bahamas, The	Bahamas
Bhutan	Bhutan
Botswana	Botswana
Belarus	Belarus
Belize	Belize
Canada	Canada
Congo, Democratic Republic of	Democratic Republic of the Congo
Central African Republic	Central African Republic
Congo, Republic of	Congo
Switzerland	Switzerland
Cote d'Ivoire	Côte d'Ivoire
Chile	Chile
Cameroon	Cameroon
China	China
Colombia	Colombia
Costa Rica	Costa Rica
Cuba	Cuba
Cape Verde	Cabo Verde
Cyprus	Cyprus
Czech Republic	Czech Republic
Germany	Germany
Djibouti	Djibouti
Denmark	Denmark
Dominican Republic	Dominican Republic
Algeria	Algeria
Ecuador	Ecuador
Estonia	Estonia
Egypt, Arab Republic of	Egypt
Eritrea	Eritrea
Spain	Spain
Ethiopia	Ethiopia
Finland	Finland
Fiji	Fiji
Micronesia, Fed. Sts.	Micronesia (Federated States of)
France	France
Gabon	Gabon
United Kingdom	United Kingdom
Grenada	Grenada
Georgia	Georgia
Ghana	Ghana
Gambia, The	Gambia
Guinea	Guinea
Equatorial Guinea	Equatorial Guinea

Greece	Greece
Guatemala	Guatemala
Guinea-Bissau	Guinea-Bissau
Guyana	Guyana
Hong Kong	China, Hong Kong SAR
Honduras	Honduras
Croatia	Croatia
Haiti	Haiti
Hungary	Hungary
Indonesia	Indonesia
Ireland	Ireland
Israel	Israel
India	India
Iraq	Iraq
Iran, Islamic Republic of	Iran (Islamic Republic of)
Iceland	Iceland
Italy	Italy
Jamaica	Jamaica
Jordan	Jordan
Japan	Japan
Kenya	Kenya
Kyrgyz Republic	Kyrgyzstan
Cambodia	Cambodia
Comoros	Comoros
Kosovo	
Korea, Democratic People's Republic of	Democratic People's Republic of Korea
Korea, Republic of	Republic of Korea
Kuwait	Kuwait
Kazakhstan	Kazakhstan
Laos, People's Democratic Republic	Lao People's Democratic Republic
Lebanon	Lebanon
St. Lucia	Saint Lucia
Sri Lanka	Sri Lanka
Liberia	Liberia
Lesotho	Lesotho
Lithuania	Lithuania
Luxembourg	Luxembourg
Latvia	Latvia
Libya	Libya
Morocco	Morocco
Moldova	Republic of Moldova
Montenegro	Montenegro
Madagascar	Madagascar
Macedonia, Former Yugoslav Republic of	The former Yugoslav Republic of Macedonia

Mali	Mali
Myanmar	Myanmar
Mongolia	Mongolia
Mauritania	Mauritania
Malta	Malta
Mauritius	Mauritius
Maldives	Maldives
Malawi	Malawi
Mexico	Mexico
Malaysia	Malaysia
Mozambique	Mozambique
Namibia	Namibia
Niger	Niger
Nigeria	Nigeria
Nicaragua	Nicaragua
Netherlands	Netherlands
Norway	Norway
Nepal	Nepal
New Zealand	New Zealand
Oman	Oman
Panama	Panama
Peru	Peru
Papua New Guinea	Papua New Guinea
Philippines	Philippines
Pakistan	Pakistan
Poland	Poland
Puerto Rico	Puerto Rico
Palestine	Occupied Palestinian Territory
Portugal	Portugal
Paraguay	Paraguay
Qatar	Qatar
Romania	Romania
Serbia	Serbia
Russian Federation	Russian Federation
Rwanda	Rwanda
Saudi Arabia	Saudi Arabia
Solomon Islands	Solomon Islands
Seychelles	Seychelles
Sudan	Sudan
Sweden	Sweden
Singapore	Singapore
Slovenia	Slovenia
Slovak Republic	Slovakia
Sierra Leone	Sierra Leone

Senegal	Senegal
Somalia	Somalia
Suriname	Suriname
Sudan South	South Sudan
Sao Tome and Principe	Sao Tome and Principe
El Salvador	El Salvador
Syrian Arab Republic	Syrian Arab Republic
Swaziland	Swaziland
Chad	Chad
Togo	Togo
Thailand	Thailand
Tajikistan	Tajikistan
Timor-Leste	Timor-Leste
Turkmenistan	Turkmenistan
Tunisia	Tunisia
Tonga	Tonga
Turkey	Turkey
Trinidad and Tobago	Trinidad and Tobago
Taiwan, China	China, Taiwan Province of
Tanzania	United Republic of Tanzania
Ukraine	Ukraine
Uganda	Uganda
United States	United States of America
Uruguay	Uruguay
Uzbekistan	Uzbekistan
St. Vincent and the Grenadines	Saint Vincent and the Grenadines
Venezuela	Venezuela (Bolivarian Republic of)
Vietnam	Viet Nam
Vanuatu	Vanuatu
Samoa	Samoa
Yemen, Republic of	Yemen
South Africa	South Africa
Zambia	Zambia
Zimbabwe	Zimbabwe

Instructions

1. Download the data from the Aquastat Database. <http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en>. Select all countries and all years. There are too many variables to download all variables at once. Divide the variables by topics (ie geography and population, water resources, etc) download this data via the "Flat" option.
2. Change the codes in the Datadict for every variable downloaded in this Excel file. The

codes need to match to match the variables listed in the downloaded data exactly.

3. Check to ensure no changes are needed in the FAO Country translation. In the most recent update China, Sudan and South Sudan all needed to be updated.
4. Upload data in IFs using the batch pool option. There will be multiple excel sheets, as the AquaStat data cannot download all variables at once. After the first excel sheet is updated, unselect data that was imported; otherwise this data will be uploaded again with a new excel sheet, and you will lose the already imported data.
5. Vet. The most recent update revealed errors in data in some series. You may need extensive vetting.
6. Some series do not contain enough data in the database to be updated. These include:

LandIrEquipDesalinated

LandIrEquipDirectAg

LandIrHarvest%Equip

LandIrHarvest%FullControl

LandIrPotentialReached

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