



AQUASTAT: a database on rural water use

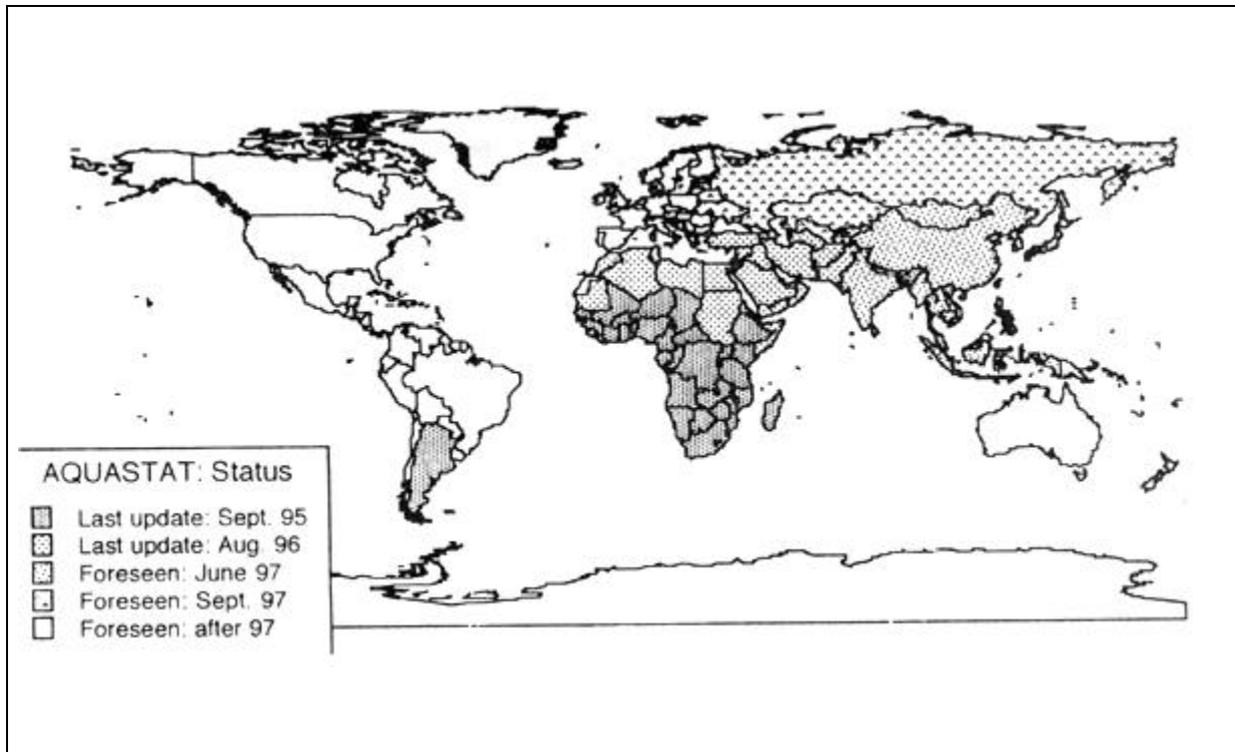
FAO's mandate includes the promotion of agriculture and rural development through sustainable use of natural resources, most notably land and water. The United Nations Conference on Sustainable Development, Rio de Janeiro, 1992, reiterated the importance of the sustainable use of water and in particular monitoring of water resources. Such an objective cannot be achieved without a good knowledge of the resources and the use which is made of them. In this context, the AQUASTAT programme has been launched in order to provide basic information on water resources and their use, in particular for agriculture and rural development.

In 1993 a pilot phase was implemented, in which data collection and processing were carried out for a selected number of countries. This made it possible to assess the availability of the information, and to finalize the structure of the database. Full implementation started in 1994.

The main purpose of the AQUASTAT programme is to select systematically the

reliable information on water resources and water use existing in the countries and make it available, in a standard format, to users interested in global or regional perspectives.

The figure below shows the present status of the AQUASTAT survey worldwide. It was a deliberate choice to start the survey with the countries of the developing world.



Methodology of the survey

Country analysis

With the help of national or international consultants the survey is being developed and carried out as follows:

1. Country-based reviews of literature and existing information. The main sources of information are :
 - national water resources and irrigation master plans,
 - national yearbooks, statistics and reports,
 - reports from FAO and other projects,
 - international surveys,
 - results from national and inter-national research centre surveys.
2. Data collection through a detailed questionnaire.
3. Standardization of the information available.
4. Data processing and critical analysis of the information, selection of the most reliable information with the assistance of data processing software developed specifically for the survey.
5. Preparation of country profiles and submission to national authorities responsible for water resources and irrigation for further comments.

Regional analysis

With the help of international consultants, preparation of regional and

continental tables, maps and analyses, and cross-checking of the information wherever possible.

Data

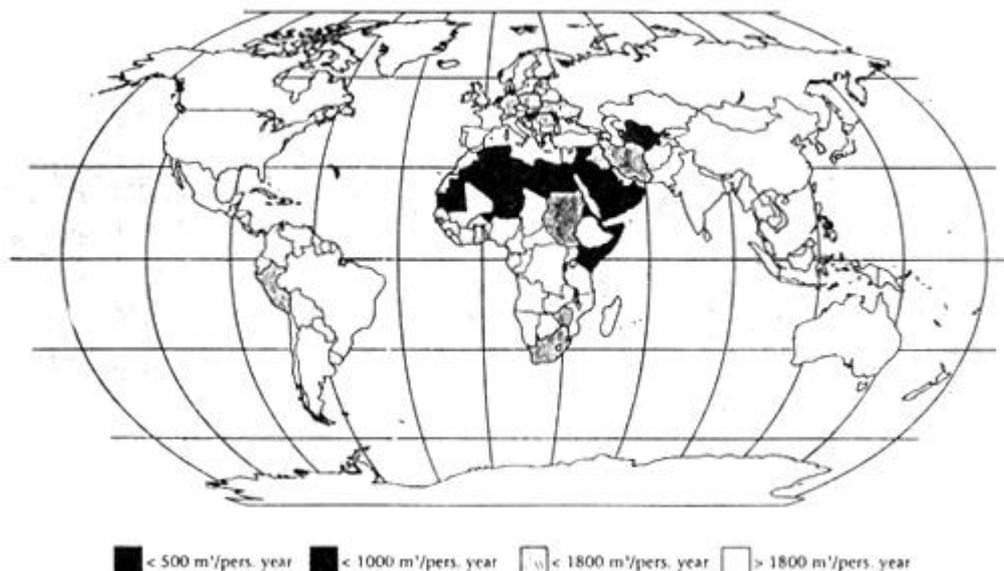
The main quantified variables gathered in the AQUASTAT database are:

- renewable water resources (groundwater and surface water),
- wastewater production and treatment,
- non-conventional water sources,
- water withdrawal by sector,
- irrigation potential,
- irrigated areas, water control and irrigation techniques,
- origin of irrigation water,
- types of management for fully or partially controlled irrigation schemes,
- number of beneficiaries,
- cost of irrigation and drainage development and operation and maintenance,
- irrigated and rainfed crops and yields,
- drained areas and drainage technologies,
- areas salinized by irrigation and flood protected areas,
- population affected by water-borne and water-related diseases.

Additional information on irrigation development, institutional environment and trends in water resources management is also presented for each country.

One of the strengths of the AQUASTAT programme is that a bibliographical reference is attached to each figure.

Internal water resources per inhabitant in 1995



Source: compilation of data from AQUASTAT and the World Resources Institute

The country profile

The country profile describes the situation regarding water resources and use in the country, and especially the irrigation and drainage subsectors. Its aim is to emphasize the particularities of each country, as well as the problems encountered in rural water management and irrigation. It also summarizes the trends of irrigation in the countries, as described in the available literature. It was a deliberate choice to attempt standardizing the country profiles as much as possible. Standardized tables are used for all country profiles.

Irrigation in Africa in figures

An enormous effort has been made in the last decade to understand better the situation of water resources management and irrigation in Africa. However it is still very difficult to obtain reliable, systematic information by country over large regions of the continent.

In 1994, it was therefore decided to focus the AQUASTAT programme on the 53 countries of the African continent, which resulted in Water Report 7: *Irrigation in Africa in figures/L'irrigation en Afrique en chiffres*. This publication is available from the Publications and Sales Section of FAO (E-mail: Publications-sales@FAO.ORG). Large extracts have been placed on the Internet, at the following URLs: [Http://www.fao.org/waicent/faoinfo/agricult/aquastat/aquastat.htm](http://www.fao.org/waicent/faoinfo/agricult/aquastat/aquastat.htm), or [Gopher://gopher.fao.org](http://gopher.fao.org), then choose "Information from FAO", and then "Aquastat".

Other products have resulted from the AQUASTAT survey for Africa:

- a survey on the irrigation potential in Africa (see below),
- a brochure *Water resources of African countries: a review*, available from the Publications and Sales Section of FAO (E-mail: Publications-sales@FAO.ORG),
- a directory of the agencies and ministries involved in water resources management in Africa,
- a list of references dealing with water resources and irrigation for Africa.

The figure shows the major rivers and lakes of Africa, along with the figures of internal renewable water resources.



Irrigation potential in Africa

The AQUASTAT survey for Africa has revealed the need for a better assessment of the irrigation potential in Africa.

Therefore, a study was carried out in 1995, combining a review of existing information on irrigation potential by country with an approach using FAO's geographic information system to assess land and water availability for irrigation. The study concentrated mainly on physical factors controlling irrigation potential (land and water) and considered only renewable water resources.

Most of the studies carried out at country level do not adequately take into account upstream and downstream demands for shared water resources, resulting in overestimates of irrigation potential at the level of international river basins. In order to avoid double counting of shared water resources, the study was conducted on the basis of major river basins.

Following this approach, irrigation potential in Africa has been estimated at 42.5 million hectares, out of which 12.2 million hectares are already under irrigation.

Environmental issues of irrigation development are also considered in this study.

The publication *Irrigation potential in Africa : a basin approach* will be available at the beginning of 1997.

Irrigation in the Near East Region in figures

After Africa, it was decided in 1995 to focus on the Near East Region, in view of the increasing pressure on water resources in this area.

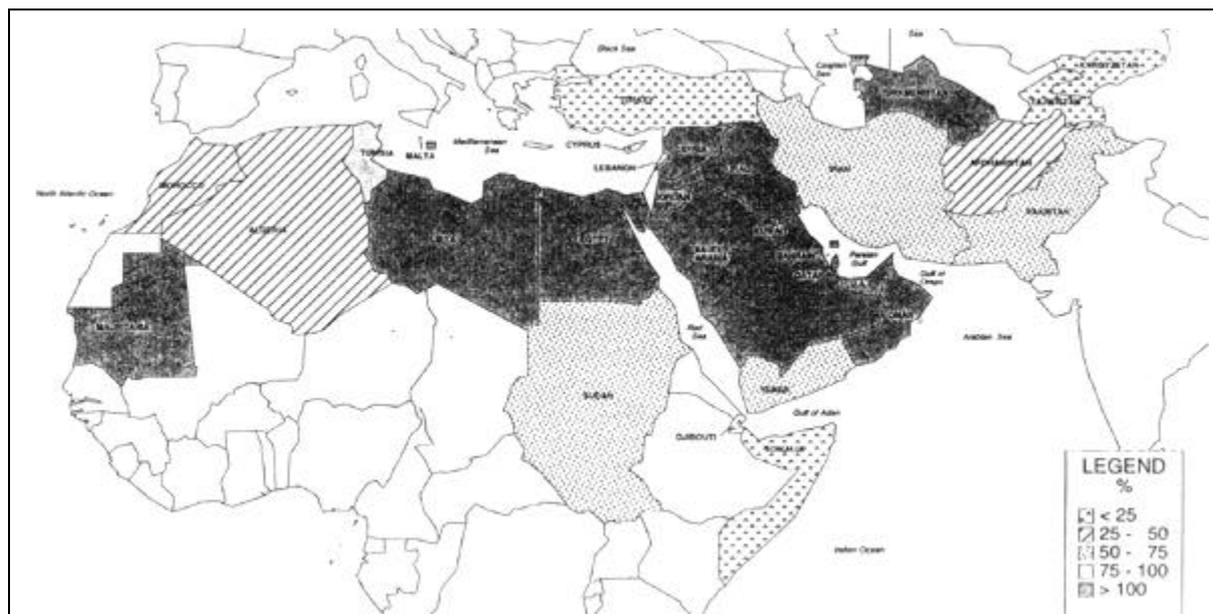
To address the specific issues arising in this region, the questionnaire was improved, and some variables were added, since they are good indicators of the water stress situation in that area:

- use of desalinated water,
- use of non-renewable groundwater (fossil water),

- reuse of treated wastewater,
- presence of treaties or agreements on the sharing of water resources amongst neighbouring countries.

The publication *Water resources and irrigation in the Near East Region* (in preparation) covers 29 countries, the members of the FAO's Regional Office in the Near East as at May 1996.

The figure below shows the water withdrawal as a percentage of the internal renewable water resources in the countries of the Near East Region.



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