One-third of humanity lives in countries where water is scarce, and 1 billion people lack access to clean water. Today’s water crisis takes many forms: to walk long distances every day to fetch enough drinking water – clean or unclean – just to get by, suffering from avoidable malnutrition or disease caused by droughts, floods or inadequate sanitation, or in terms of a lack of funds, institutions or knowledge to solve local problems of water use and allocation.

The World Water Assessment Programme (WWAP) monitors the state of the world’s water with respect to socioeconomic and environmental needs and publishes its findings in a series of World Water Development Reports. The Reports are organized in terms of eleven challenge areas that are social, economic, political and environmental in nature. All need to be addressed by the water sector today in order to promote sustainable and equitable water management. Many of these challenges are interconnected, requiring integrated and holistic solutions.

THE WORLD’S WATER

In many areas, aquatic ecosystems are deteriorating rapidly and species are declining. Pollutants are being released continually into the water environment, affecting in increasing number of people, particularly those living in developing countries. This has resulted in loss of life and livelihoods, and impaired development. This map illustrates the distribution of river basins, which serve as the basic units for the people affected by a country’s pollution challenge.

The long-term average water resources in a river basin are used as an indicator of the water available to basic basins. The use of the river basin as the basic unit allows comprehensive water planning and management activities. The development of reservoirs can help countries to better manage extreme events and disasters such as floods and droughts.

Global groundwater volume stored beneath the Earth’s surface represents 30% of the Earth’s non-frozen freshwater. Groundwater feeds springs and streams, wetlands, maintains land surface stability in areas with unstable ground, and acts as an overall critical water resource serving our water needs. While the benefits derived from groundwater extraction are significant, non-extraction can result in such negative effects as the drying up of springs and streams of rivers and poorer water quality. This map illustrates the potential availability of groundwater resources in shared aquifers.

GOVERNANCE:

Today’s water crisis is largely a governance problem. The response of countries to water-related disasters and shortages, the allocation of transboundary water resources, the management of natural water resources, and the development of capacity and knowledge, should be the shared responsibility of governments and civil society. Effective and equitable water management is impeded by many factors, such as sector fragmentation, corruption, insufficient aid and investment in the water sector, inadequate institutions and lack of stakeholder participation. An integrated approach to water management is recognized as the best way to overcome these obstacles.

MANAGING RISKS

Over the last century, there has been a significant rise in the number of natural disasters, affecting in increasing number of people, particularly those living in developing countries. This has resulted in loss of life and livelihoods, and impaired development. This map illustrates the distribution of river basins, which serve as the basic units for the people affected by a country’s pollution challenge.

The World Water Assessment Programme monitors the state of the world’s water resource serving our wetlands, maintains land surface represents 96% of the water available to basin populations. The use of the river basin as the basic unit allows comprehensive water planning and management activities. The development of reservoirs can help countries to better manage extreme events and disasters such as floods, droughts, tsunamis and hurricanes.

SHARING WATER

Water resources, surface and ground, do not respect political boundaries or as one third of all low lands are shared by more than two countries. Worldwide, there are 364 international river basins (58 in Africa alone). If in Europe 14 in Latin America and South-East Asia, 17 in North America, 1 in Australia. Overall, 146 countries have territories that include at least one shared basin.

Between 1980-1990, there have been 1,051 international interactions related to water, 80% of which were associated with river basins and, most importantly, 1,298 instances of cooperation. Despite the general political will, dialogue, diplomacy and good will, rather than conflict, is likely in shared basins.

VALUING WATER

Water incorporates social, cultural, environmental as well as economic values. All of these must be taken into consideration in the integrated policies and initiatives. If the goals of Integrated Water Resources Management (IWRM) including social equity, environmental sustainability and economic efficiency are to be realized, it is a great case for more efficient countries where people are more willing to pay more than the rich for the same water services in the past. Moreover, the need to revalue water would require governments, the private sector, insurers and even individuals to rethink the way they use and conserve the natural resource. This has to influence production and production policies especially in water stressed areas in an attempt to make the most efficient use of the available water supplies.

KNOWLEDGE AND CAPACITY DEVELOPMENT

The lack of data and sound knowledge base systems, as well as equitable access to and sharing of relevant water-related data and indigenous knowledge, is one of the barriers to effective water management and the cause of many conflicts and environmental decline. This has resulted in loss of life and livelihoods, and impaired development. This map illustrates the distribution of river basins, which serve as the basic units for the people affected by a country’s pollution challenge.

FOOD, AGRICULTURE AND RURAL LIVELIHOODS

Agriculture is the largest water consumer in the world, with irrigation now claiming close to 70% of all water withdrawals. Any water crisis will therefore also create a food crisis. Currently, about 85% of our water use goes into agriculture, which is expected to grow, especially in developing countries. It is estimated that every person can have access to enough food to live healthy and productive lives. About 10% of the world’s population already suffers from water related shortages, most of whom live in dry areas. In 2004, more than half a billion people. In 2004, about one billion people, about 10% of the world’s population, were living in water-stressed areas.

HUMAN SETTLEMENTS

In 2000, the world’s population was about 6.1 billion people. By 2050, global population is expected to reach close to 9.4 billion. During this time, population growth will urban areas (increased from 36% in 1970 to 52% by 2010, with more than 50% of the global population will be urban dwellers.

This increase has important implications for water planning and management. Pressure of water and sanitation issues will likely increase much more than the population growth in both low-income and higher middle income countries.

RELATIVE WATER STRESS INDEX

This map shows populations living in water-stressed (red) and relatively water-stressed (blue) conditions, highlighting substantial within-country differences that national estimates often obscure. Higher stress occurs when water availability is less than water demand; lower stress occurs when water availability is higher than demand.

INDUSTRY

In many river basins, there is increasing competition for water among the various water uses. If we compare industry’s water use to other sectors, clearly agriculture and domestic are far higher. Partly, this is due to a global trend, partly it is due to the situation of the countries. In sub-Saharan Africa, although water use is lower, the water use by industry is a large proportion of the total, while in East Asia, much of the demand is for irrigation. In the report, we compare the amount of water used by industry to the demand of water for agriculture.

ENERGY

We currently produce the vast majority of our energy from non-renewable sources. The primary sources include coal, oil, gas and nuclear. If the current energy trends continue, the world’s energy needs will increase almost 80% higher in 2030 than they were in 2000. Fuel costs will continue to be the largest energy source in spite of the fact that they are a limited and non-renewable resource.

To halve the proportion of people who do not have access to safe drinking water, by the Millennium Development Goal (MDG), the world has to double their efforts to bring the numbers down by 2015. Of the total of 970 million people living in water-stressed areas in 1980, only 60 million people had access to safe drinking water in 2005 – almost as many as there were in 1980.
One of the key objectives of the World Water Assessment Programme (WWAP) is to assist countries in reaching their commitments in key water-related challenge areas. Since its founding in 2000, WWAP has helped support the preparation of 17 CASE STUDIES in 41 COUNTRIES, details of which can be found at www.unesco.org/water/wwap. A glimpse of each case study is presented here in terms of a panorama of issues critical to the UNITED NATIONS WORLDWATER DEVELOPMENT REPORTS.

Local-level actions are the starting point of the global strategy to improve the overall quality of the world's water resources. Lessons learned — successes and failures — are invaluable sources of information and, if properly shared, will help us to solve some of the world's most pressing freshwater-related problems.