

Water Security in the WANA region

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Water security is the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.

UN WATER

Water security is essential for economic development, livelihoods, ecological sustainability, human dignity and conflict resilience. The particular importance of water security for the WANA region arises from a unique set of circumstances reflecting all factors influencing water security.

Water is the most limiting factor for economic development. Ranging almost entirely from hyper-arid to semi-arid climate, the countries either face water stress or water scarcity. A severe lack of natural water availability, insufficient access and quality concerns in many parts of the region make it difficult to utilise economic potentials.

Most of the surface and ground water bodies are shared between two or more countries. This can be a chance for cooperation, but also a source of conflict within and between countries. Several conflicts in the region have slowed down regional cooperation.

Continuous overuse and mismanagement of fresh and wastewater is a reality for most countries, leading to wasteful and environmentally alarming practices.

Agricultural, domestic and industrial pollution and salinisation of surface and ground water bodies accelerate the deterioration of livelihoods even more. Health of man and nature are closely dependent on treatment of waste water, its reuse options and improved sanitation.

High population growth demands ongoing efforts to secure more water. This does not only hold environmental and financial difficulties, but can also be the cause for unrest and violence. Political stability within and among countries is affected by water security concerns.

A large part of the region's population is under the age of 25. Transforming water resources to new sources of income for many people in a short time is challenging in many ways. Policies, investments, infrastructure development and water management need to be synchronised.

Population growth, unmet water demand and urbanisation

There is no region in the world with similarly low water availability per capita than the WANA region. Water demand continues to increase while supply continues to

decrease, with some countries expected to face more than 50% unmet demand of water by 2050. In this scenario competition between economic sectors will exacerbate to levels threatening the social fabric of some countries, with potential local violent conflicts, such as the one in Yemen in 2007¹. Population growth will contribute the largest share of increased water demand, with urban settlements growing much faster than rural ones. Urbanisation poses a serious challenge to WANA countries. Expensive water infrastructure for supply, treatment and reuse will have to be expanded for a 70% urban population of around 524 million in 2030. Total annual per capita renewable water resources of the region are expected to half by 2050, falling from about 1,000 cubic meters today. Current differences in per capita internal renewable freshwater availability vary among WANA countries from 0 in Kuwait or 22 cubic meters in Egypt, to more than 3,000 cubic meters in Turkey².

Overexploitation, mismanagement and pollution

In total, the region's human activities withdraw about 80% of the water renewed annually from precipitation. This figure hides the degree of local water scarcity and overexploitation: the median and average national percentages of withdrawal are about 115% and 340%, respectively. More than half of the region's countries overexploit their freshwater resources, tapping non-renewable aquifers or running desalination schemes. Extremes go up to a water use of more than 1,500% of annual recharge in the United Arab Emirates³. Overpumping causes soil salinisation and salt water intrusion in many places, further threatening surrounding ecosystems and upstream and downstream water users. Lacking economic incentives and regulations lead to excessive consumption in some, and to high distribution losses in many countries. Cairo's water infrastructure loses large amounts of water distributed to households due to leakage, while some districts are not served at all. Infrastructure losses and consumption behaviours add to cuts in water supply and pollution from untreated effluents in canals.

Fossil aquifers and desalination (especially in oil-exporting countries) augment pressures on natural freshwater bodies, but desalination damages coastal and marine ecosystems due to chemicals, heavy metals and high salinity of the brine. Additionally, desalination plants emit large amounts of greenhouse gases, as most of them are run with electricity generated from fossil fuels. Gulf countries devote between 5% and 12% of their electrical energy to desalination⁴. Pollution is also caused by about half of the domestic and industrial waste water not being treated, causing serious health risks in agricultural reuse and ecosystems in some countries.

High dependency of many countries on external water sources

¹ Hales, Gavin, Yemen Armed Violence Assessment, Small Arms Survey, Geneva, 2010.

² World Bank data, <http://data.worldbank.org/indicator/>.

³ World Bank, Making the most of scarcity, Washington, DC, 2007.

⁴ Siddiqi and Anadon, The water-energy nexus in Middle East and North Africa, Energy Policy 39 (2011) 4529–4540.

is caused by the transboundary nature of all larger surface and most ground water bodies. Virtual water imports in the form of food (particularly cereals) play an important role in substituting local agricultural water use. Physical water scarcity, deteriorating environments and economic forces have turned the region to the largest food importer in the world.

Change in climate and consumption patterns

Global warming is expected to increase crop water demands in agriculture, while rainfall is likely to decrease for most of the region. Variable and low rainfall will remain the predominant factor for challenges in the agricultural sector and competition over water with other sectors will intensify.



The polluted Nile River (Source: BBC).

Large parts of Iran, for example, are facing severe or high water stress, while an average per capita availability of 1,700 cubic meters is not indicating this.

Temperature-driven increases of evaporation and decreases of river inflow from neighbouring countries are falling together with a lasting drought in the country.

Low water prices for domestic and industrial users in most countries often lead to inappropriately high consumption and missing incentives to save and reuse water. With economic progress and easy access to imported goods, people tend to consume more water intensive foods such as cow meat and dairy products. Part of this additional demand is met by local industrialised production, causing additional depletion and pollution.

Access to sanitation and drinking water

In northern Africa about 9% of the population do not use improved sanitation facilities (5% urban and 13% rural), while in western Asia the estimate is 11% (4% urban and 27% rural). In northern Africa about 8% lack access to improved drinking water (5% urban and 11% rural), while in western Asia the estimate is 9% (4% urban and 21% rural). In terms of progress towards the related MDG targets, the WANA region is considered to be on track and the sanitation target has been met in northern Africa. However, there remains a relation of diarrhoeal disease mortality of children under 5 to insufficient sanitation. Contrary to the general improvement, Iran's rural

population without improved sanitation has recently increased to 18.4%.⁵

Possible interventions and strategies

Investments in water infrastructure have to be made in supply and treatment systems. Decreasing non-revenue water and increasing treatment and reuse are important measures to achieve higher efficiency and reduce conveyance

The Arab states have the largest proportion of trans-boundary surface and subsurface water resources in the world.

losses. While large amounts of water can be saved on the supply side, the demand side measures are equally important for successful water saving strategies. Incentives for agricultural, domestic and industrial water saving practices have to come from both, a common understanding of the environmental, social and

economic costs of water wastage or pollution and a pricing system ensuring conservation and maintenance of water networks. Demanding accountability towards service providers and the willingness to pay are closely linked to participative and empowered communities.

Policies need to focus on monitoring, water quality standards and equitable distribution to achieve higher sanitation coverage as well as ecological and political stability.

Decentralised and affordable water treatment technologies will help in raising efficiency and (re-)cycling of water within a local ecosystem. Sustainable livelihoods and environmentally friendly energy production in rural areas can reduce urbanisation and pollution levels as well as desertification on the margins from semi-arid to arid climate zones.

The use of treated waste and brackish water resources in industry and agriculture will further augment pressures on fresh water bodies.

The risk of regional and local water conflict can only be addressed by cooperative management of national and transboundary resources. By bringing together water users from all sectors and levels, better solutions can be found in often fragmented and isolated policy making structures.

⁵ WHO and UNICEF, JMP Report, Progress on drinking water and sanitation, Geneva, update 2014; World Bank data, <http://data.worldbank.org/indicator/>.



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