



Water scarcity in least developed countries

Lack of water, an essential life resource, is expected to affect one-third of the population worldwide by 2025. Today, 1.2 billion people live in areas of scarcity, while 1.6 billion face water shortages due to economic problems. The more society grows, both in terms of population and urbanisation, the greater the need for water, causing ever-growing problems in daily life. Indeed water use has been growing at more than twice the rate of population increase over the last century.

Water scarcity is not only related to the amount of precipitation and fresh water, it also depends on water conservation, distribution, quality and demand.

The issue is particularly worrying in least developed countries (LDCs), where water is scarce or there is little or no infrastructure to extract, distribute or conserve water.

Water scarcity also means that, apart from drinking problems, people face problems in hygiene or the environment they live in. It increases the chances of disease and infection, while water conservation in unsafe conditions often provokes the risk of contamination.

The international community is trying to tackle this problem and aims to halve the proportion of people without access to safe drinking water or basic sanitation.

In this briefing:

- Water scarcity: global trends and drivers
- Consequences in LDCs
- International responses
- EU policy
- Innovative proposals
- Main references

Water scarcity is defined as the point at which demand from all sectors, including the natural environment, cannot be fully satisfied. Scarcity may be a social construct (a product of affluence, expectations and customary behaviour) or the consequence of altered supply patterns – stemming from climate change for example¹.

Water scarcity: global trends and drivers

Water use has been growing globally at more than twice the rate of population increase over the past century, putting finite water resources under stress. Water stress is mainly driven by natural and human causes; the latter being unsustainable use of freshwater and human interference in the water cycle.

Natural causes

According to [UN sources](#) over 40% of the Asian and African population live in drylands, while 25-30% of the rest of the world's population is affected by the same problem.

Causes of water scarcity include population growth, increases in food production, land use, factors affecting water quality and climatic variability. These factors have caused stresses such that only a small amount of freshwater is available for human use.

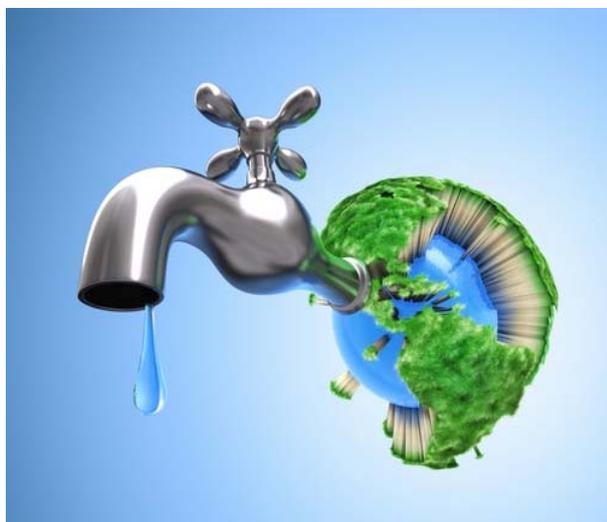


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Water scarcity is also influenced by climate change. Amounts of rainfall, as well as their timing, are changing, significantly affecting water management. Moreover, climate change increases risks and vulnerabilities, raising demand for water while reserves decrease, putting more people at risk by worsening water scarcity and accelerating biodiversity loss and land degradation. Climate change decreases river flow and aquifer recharges, worsens water condition, through glacier melting, makes water evaporate and contributes to a rise in temperatures all over the world. It also causes severe drought. And that is especially true in regions which are least responsible for climate change, but most vulnerable to its effects.

Human causes

Over-extraction in rural areas is the main phenomenon which needs to be addressed. This implies withdrawals of water exceeding the recharge rate of a basin, usually for agricultural or industrial purposes, causing a fall in the level of the aquifer. Large quantities of water are needed to produce food, and withdrawals for agricultural purposes account for around two-thirds of worldwide total consumption (in Asia this figure reaches 81%), while industrial use is responsible for around 20%.

As for human interference, this is mostly a matter of expanding demand - for a finite resource - and population growth. But the issue of quality also needs to be addressed; quality in the context of natural land use and degradation, and also as a result of human intervention. Such intervention can be both too little – sufficient resources exist but there are shortcomings in conservation or distribution – or too much, as in the case of pollution, poor farming practice, deforestation, or dam-building. Infrastructure and the way water is managed also play an important role in the distribution of water.

Political, sociological and legislative considerations also contribute to the problem. Alleviating water-scarcity is indeed

closely linked to poverty reduction, especially in rural areas of low-income developing countries.

Local management of natural and water resources often causes tension and conflict. It is forecast that rivalry over water resources will increasingly spread tension, and it is argued that several conflicts in Africa are linked to water scarcity.

Consequences in LDCs

The adverse effects of water scarcity are particularly troubling for the world's poorest countries. Certain regions, such as South Asia, East Asia and the Middle East, already have populations greater than their level of water resources can support, and they continue to grow.

Scale

Millions of people in least developed countries are not connected to water supply infrastructure, and therefore face significant risks to health and life. Disparities between different regions are significant. Sub-Saharan Africa is the area with most water-stressed countries and high infant mortality-rates due to water-borne disease.

According to FAO sources², renewable water resources in Africa amount to 9% or less of global resources. In Asia, water scarcity is becoming an issue even for China, Japan, the Philippines and India, but it already affects most of the region, a situation worsened by the uneven distribution of precipitation.

However, water is not a scarce resource in every developing country. In many cases, resources are sufficient, provided the water management cycle is improved. The needs of their populations cannot be satisfied because of a poor water management framework, or because of poor quality, such as untreated water damaging subsoil or causing diseases.

For example, [access to water supply and sanitation in Africa is the lowest in the](#)

[world](#). In Sub-Saharan Africa, 44% of people have no access to safe drinking water and basic sanitation, while globally the figure is 20% or less.

Infrastructure is expensive and, once built, needs to be maintained to ensure that people get adequate water and sanitation. Governments are therefore reluctant to invest heavily in this sector as they see a continuing burden not future profit.

Consequences

LDCs mostly depend on agricultural economies and therefore land degradation is a highly problematic issue since water scarcity contributes to food insecurity in these regions. However, due to water scarcity, less than 5% of arable land in Africa is irrigated. Droughts, floods and other extreme events are now more frequent than before, with this vulnerability undermining economic progress. Floods in Pakistan, drought in the Horn of Africa and tsunamis in South-east Asia and the Pacific are the most recent examples of such problems.

Due to poor water quality, disease continues to spread and water-borne sickness is one of the biggest causes of death.

Lack of water is more than a health issue. It hinders economic growth and security, increasing the chance of local conflicts. Water is never the only cause of violence, but several commentators argue [it has contributed to amplifying security threats](#).

As for the economic considerations, a World Bank study³ estimates that the African continent loses 5% of gross domestic product because of water scarcity and lack of sanitation infrastructure.

Several developing countries lack capacity to manage the water cycle effectively. Poverty, under-development and growth in population influence water management by increasing demand – especially in urban areas – making it impossible to provide adequate services and quality. Whilst in Africa several countries use less than 5% of

their water resources, in certain Asian countries the situation is even worse. Cambodia and Laos use less than 1% of their resources, according to UN sources⁴.

Arable land turns into desert at a fast rate and lowers crop productivity. China, the Middle East and Central Asia are experiencing this threat, but the African countries are the most affected, every year losing thousands of hectares of arable land.

Specific causes

Water scarcity is common to parts of Asia, sub-Saharan Africa and Latin America, with farms' productivity expected to fall further. In such a context, another issue worth pointing out is hydrological variability; not only in the Sahara region, but in other parts of the five continents where conditions range from humid to semi-arid. Uneven climate patterns and the unpredictability of rainfall makes it difficult to adopt a common approach, and often worsens the situation in the affected countries.

There is also widespread apprehension about the presence of pollutants and other unsafe substances like pesticides, chemical substances and pharmaceutical products. Pollution is mainly caused by agricultural land use or by wastewater in urban areas, and needs to be tackled and controlled as well as prevented.

The ratio of water supply to population remains the biggest problem for least developed countries. Water resources are often not proportionate to the population concerned, which continues to grow – along with the economy – consequently provoking an increase in demand while the resource remains scarce.

Unequal access to water is exemplified by the difference between rural and urban areas, in a vicious cycle that sees humans displaced from rural areas with insufficient water resources to urban areas where there is insufficient infrastructure to get water to increasing numbers of people.

This complicated position implies a need for an interconnected approach, since many water basins are shared between different countries. Cooperation over water resources is sometimes difficult to achieve because of the poor governance frameworks in specific countries, and is often determinant in regional instability.

Regional or sub-regional strategies and frameworks are fundamental to giving access to safe drinking water.

Africa⁵ and Asia⁶ have a long list of basin organisations to manage actions related to common water resources, fostering cooperative relations. Both continents also have high-level mechanisms to enhance collaborative efforts, aimed at pursuing water security, such as the [Asia-Pacific Water Forum](#) and the [African Ministers' Council on Water](#). They mobilise resources to finance water resources development activities, with support from international organisations.

International responses

The international community has made a number of efforts to tackle the water scarcity problem. One of the Millennium Development Goals is to "[halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation](#)." In March 2012 the UN announced that this requirement has already been met.

Water issues will be on the agenda of the [Rio+20 United Nations \(UN\) Conference on Sustainable Development](#) in June.

The UN, through its special rapporteur⁷, invited states not to focus only on urban areas but to aim to reach vulnerable communities. It underlined the importance of setting realistic targets and support for local capacity-building, together with institutional strengthening. The UN has also compiled a [Compendium of Good Practices](#), with recommendations on how to improve access to safe water and sanitation. It also proposed low-cost interventions to improve

slum housing conditions, in which proper sanitation and water facilities are lacking.

The UN Conference on Trade and Development suggested setting up [special industrial zones](#) with access to water purification facilities. The UN has also established the [UN Water](#) agency to coordinate UN actions on the issue.

The World Health Organisation supports the implementation of the Compendium and emphasises the importance of building capacity at regional and sub-regional level. It also established a [Joint Monitoring Programme for Water Supply and Sanitation](#) in 1990, as a management tool to monitor progress in individual countries.

EU policy

The European Union, apart from setting up a [Strategy](#) to cope with climate change with developing countries, has addressed the issue of water scarcity in a [number of ways](#) recently. In a June 2011 [Communication](#), the Commission recognised that water scarcity is becoming more and more acute, potentially affecting one-third of the population by 2025. It also affirmed that water management is essential to eradicate poverty and avoid conflicts.

In its [Conclusions](#) on Rio+20, the Council admitted that water scarcity is "a serious threat to human societies, ecosystems, peace and stability", and invited the European Commission to present proposals for concrete actions. Janez Potočnik, European Commissioner for Environment, stated at the [World Water Forum](#) Ministerial Conference, that the issue of water scarcity can only be tackled if included in other policy areas, such as agriculture, energy, transport and climate. He reassured his audience that the EU will contribute to promote then efficient use of water resources in order to reduce the problem, and confirmed that [there is no "one size fits all" approach](#), as responses need to be tailored to specific situations.

Many water research projects have been funded by the EU's Research Framework Programmes, with some of them including impact assessments in least developed countries⁸. Pooling of relevant national research efforts is also underway.

The EP adopted, in September 2011, a [resolution on an EU policy framework to assist developing countries in addressing food security challenges](#), highlighting the link between water scarcity and food insecurity, particularly for the poorest. While expressing its concern over the current situation on water access, it also suggested tying EU and Member States' aid to developing countries to the development of facilities for generating renewable energy and good water management.

Innovative proposals

Many actors are trying to develop new strategies and approaches to tackle water scarcity in developing countries.

One initiative is the [2030 Water Resources Group \(WRG\)](#), a global partnership founded in 2008 by the World Economic Forum and the International Finance Corporation, bringing together development institutions, bilateral development agencies, relevant private companies, expert organisations, NGOs and think-tanks. The organisation provides a model of collaboration in order

to ensure long-term sustainability and management of water resources.

Although other partnerships exist, this initiative put forward a complementary approach by attracting new actors to a constructive dialogue to share best practices and help governments to address those issues and implement needed reforms. To date, [Jordan](#), [Mexico](#), [South Africa](#), [Mongolia](#) and [local authorities in China and India](#) are already involved in joint-activity with the 2030 WRG.

Main references

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⁸ [SODISWATER Final Report](#), Solar Disinfection of Drinking Water for use in Developing Countries or in Emergency Situations, April 2010, p. 90.