



United Nations
Educational, Scientific and
Cultural Organization

**The United Nations
World Water Development Report 2019**

Leaving no one behind

Executive Summary



United Nations
Educational, Scientific and
Cultural Organization



World Water
Assessment
Programme



Sustainable
Development
Goals

Improvements in water resources management and access to water supply and sanitation services are essential to addressing various social and economic inequities, such that ‘no one is left behind’ when it comes to enjoying the multiple benefits and opportunities that water provides.

The world’s water: An increasingly stressed resource

Water use has been increasing worldwide by about 1% per year since the 1980s, driven by a combination of population growth, socio-economic development and changing consumption patterns. Global water demand is expected to continue increasing at a similar rate until 2050, accounting for an increase of 20 to 30% above the current level of water use, mainly due to rising demand in the industrial and domestic sectors. Over 2 billion people live in countries experiencing high water stress, and about 4 billion people experience severe water scarcity during at least one month of the year. Stress levels will continue to increase as demand for water grows and the effects of climate change intensify.

Access to water supply and sanitation

Three out of ten people do not have access to safe drinking water. Almost half of people drinking water from unprotected sources live in Sub-Saharan Africa. Six out of ten people do not have access to safely managed sanitation services, and one out of nine practice open defecation. However, these global figures mask significant inequities between and within regions, countries, communities and even neighbourhoods.

Global cost-benefit studies have demonstrated that water, sanitation and hygiene (WASH) services provide good social and economic returns when compared with their costs, with a global average benefit-cost ratio of 5.5 for improved sanitation and 2.0 for improved drinking water. It is likely that the benefits of improved WASH services for vulnerable groups would change the balance of any cost-benefit analysis that accounts for changes in these groups’ self-perceived social status and dignity.

The human rights to water and sanitation and the 2030 Agenda for Sustainable Development

Safe drinking water and sanitation are recognized as basic human rights, as they are indispensable to sustaining healthy livelihoods and fundamental in maintaining the dignity of all human beings.

International human rights law obliges states to work towards achieving universal access to water and sanitation for all, without discrimination, while prioritizing those most in need. Fulfilment of the human rights to water and sanitation requires that the services be available, physically accessible, equitably affordable, safe and culturally acceptable.

‘Leaving no one behind’ is at the heart of the commitment of the 2030 Agenda for Sustainable Development, which aims to allow all people in all countries to benefit from socio-economic development and to achieve the full realization of human rights.

Caution must be taken in order to clearly differentiate between ‘water rights’ and the human rights to water and sanitation. Water rights, which are normally regulated under national laws, are conferred to an individual or organization through property rights or land rights, or through a negotiated agreement between the state and landowner(s). Such rights are often temporary and can potentially be withdrawn. The human rights to water and sanitation are neither temporary nor subject to state approval, and they cannot be withdrawn.



Woman in camp for people displaced by floods in Pakistan. © UNHCR/S. Phelps, www.flickr.com, (CC BY-NC-SA 2.0)

Who are being left behind?

There are multiple prohibitive grounds of discrimination, but poverty usually figures quite prominently.

International human rights law obliges states to work towards achieving universal access to water and sanitation for all, without discrimination, while prioritizing those most in need

Women and girls regularly experience discrimination and inequalities in the enjoyment of their human rights to safe drinking water and sanitation in many parts of the world. Ethnic and other minorities, including indigenous peoples, migrants and refugees, and people of certain ancestries (e.g. castes), often experience discrimination, as can religious and linguistic minorities. Disability, age and health status can also be a factor, as persons with physical, mental, intellectual or sensory impairments are disproportionately represented among those who lack access to safe drinking water and sanitation. Differences in property, tenure, residence, and economic and social status can lead to discrimination as well.

These do not necessarily constitute an exhaustive list of such specific disadvantaged groups or individuals in vulnerable situations, and it is important to note that some people may suffer from multiple forms of discrimination (intersectionality).

Delivering water and sanitation services

Water availability depends upon the amount of water physically available, and how it is stored, managed and allocated to various users. It includes aspects related to the management of surface water, groundwater, as well as water recycling and reuse.

Water accessibility refers to how water is physically delivered or obtained. Piped water is the least costly method to transport water in densely populated areas. Where piped networks are unavailable, people mostly rely on wells or community water supply systems (e.g. water delivery through kiosks and vendors, or water trucks). In the latter case, they often pay prices several times higher for water of lesser quality, further exacerbating inequities between the rich and disadvantaged.

Water *treatment* relates to the processes used to purify, disinfect and protect water against recontamination. The most common methods of water treatment depend upon energy (usually electricity) being available around the clock, which is rarely the case in most developing countries. Low-tech and nature-based solutions also exist but are usually not applied at scale and usually do not guarantee a quality of water that is safe for drinking.

Sanitation generally comprises on- or off-site facilities for the collection, transport, treatment and disposal of waste under hygienic conditions. Collection systems usually refer to a toilet system. Transportation in the context of typical grey infrastructure refers to a piped underground sewage system, although in some instances waste is transported by trucks, and treatment – when available – usually involves centralized sewage treatment plants or localized systems (e.g. septic tanks). Disposal of end products is usually split into liquid and solid waste that can be disposed of safely into the environment or, if not, collected in hazardous waste facilities to be destroyed in an incinerator.

Water-related natural hazards, such as floods and droughts, can damage water supply and sanitation infrastructure, preventing service to millions of people.

Social dimensions

The social and cultural factors driving exclusion and discrimination need to be taken into account when endeavouring to fulfil the human rights to safe drinking water and sanitation, as well as to implement Sustainable Development Goal (SDG) 6.

Discrimination may happen in various ways and for different reasons. *Direct discrimination* occurs when individuals are discriminated against in laws, policies or practices that intentionally exclude them from service provision or equal treatment. *Indirect discrimination* occurs when laws, regulations, policies or practices seem neutral at face value, but in practice have the effect of exclusion from the provision of basic services.

The basic provision of safe drinking water and sanitation facilities at home and in the workplace enhances workforce health and productivity. Providing similar facilities in schools enhances education outcomes by reducing absenteeism, particularly among adolescent girls.

Comparatively lower levels of access to water and sanitation services can be observed among ethnic minorities and indigenous peoples. Valuing traditional knowledge through the recognition of indigenous peoples' stewardship of land and water supports inclusion and the fulfilment of human rights.

Good governance

Having inclusive institutional structures in place for multi-stakeholder dialogue and cooperation is essential to ensuring equitable access to sustainable water supply and sanitation services.

Government alone cannot always take on the full responsibility for 'providing' water supply and sanitation services to all citizens, especially in low-income settings. When governments' role is geared towards policy setting and regulation, the actual provision of services is carried out by non-state actors or independent departments. Well-functioning accountability mechanisms help institutions with sufficient capacity fulfil their mandates to monitor and enforce the obligations of service providers.

Creating coherence between the various institutional levels is essential to ensure that policies deliver on their objectives. In the current context of multi-level governance, the role of non-governmental organizations (NGOs) in expressing the opinions of civil society and promoting the public's active participation has become increasingly influential in policy formulation. Large corporations can also have a great deal of influence over policy-making as well as policy outcomes.



Indigenous women in Brazil. © Filipefrazao/iStock/Getty Images

Having inclusive institutional structures in place for multi-stakeholder dialogue and cooperation is essential to ensuring equitable access to sustainable water supply and sanitation services

‘Pro-poor’ measures are far more common in policy proclamations than in mechanisms for tracking or monitoring service provision. The fulfillment of pro-poor policies can also be hampered by the non-application of financial measures aimed at reducing disparities in water services. Overambitious policies with unrealistic targets can lead to a mismatch between the responsibilities and the resources available to responsible entities. Corruption, excessive regulation and/or rigid conformity to formal rules, which tend to coincide with bureaucratic inertia, can increase transaction costs, discourage investments, and potentially derail or hinder water management reforms.

The human rights-based approach (HRBA) advocates for the fundamental standards, principles and criteria of human rights frameworks. These include non-discrimination and participation that is active, free and meaningful, as well as representation by and for people in disadvantaged or vulnerable situations. *Good governance* relates to systems that have qualities of accountability, transparency, legitimacy, public participation, justice and efficiency and therefore overlaps with the principles of the HRBA. Good water governance involves measures and mechanisms that promote effective policy implementation along with sanctions against poor performance, illegal acts and abuses of power. Holding decision-makers accountable requires ability, willingness and preparedness among rights-holders (or their representatives) to scrutinize actions and non-actions. This in turn builds on transparency, integrity and access to information.

Economic dimensions

The vulnerable and disadvantaged, who are typically not connected to piped systems, suffer disproportionately from inadequate access to safe drinking water and sanitation services and often pay more for their water supply services than their connected counterparts.

The human rights to water and sanitation place obligations on states and utilities to regulate payments for services and to ensure that all members of the population can afford access to basic services. Ensuring that water is affordable to all requires policy recommendations tailored to specific target groups.

Expenditure on drinking water and sanitation typically includes infrequent, large capital investments, including the cost of infrastructure and connections as well as recurrent spending on operation and maintenance. One way of increasing affordability is to lower the costs of providing the service. Technological innovation and dissemination, the enhancement of management through good governance and increased transparency practices, and the implementation of cost-effective interventions can improve production efficiency and thus lower service costs.

Ensuring that water is affordable to all requires policy recommendations tailored to specific target groups

Even with improved efficiency, it is likely that subsidies will continue to be important for achieving universal coverage. Because subsidies are most often linked to capital expenditures and those are most often focused on relatively well-off communities, the non-poor have often been the beneficiaries of subsidy interventions intended to reach the poor. Sanitation services may be more natural candidates for subsidies than water supply services, since willingness to pay for such services is often lower and the wider social benefits are higher. Subsidies that promote greater community participation empower vulnerable groups to allocate resources toward their own priorities.

Setting tariffs — ideally the major funding source of service provision — requires striking a balance between several key objectives: cost recovery, economic efficiency, equity and affordability. Designing tariff structures is challenging precisely because these four objectives conflict, and trade-offs are inevitable. WASH services differ from many other services in that they are considered a basic right and should be provided to people regardless of cost or ability to pay. If, to meet affordability and equity objectives, subsidies are to be delivered through water tariffs, then vouchers or cash distribution might be better than an increasing block tariff (IBT).

Large WASH service providers can use commercial financing and indirectly support vulnerable groups through cross-subsidization. Where this is the case, pricing mechanisms might allow for cross-subsidization between population groups, using a uniform volumetric tariff with a rebate. Ideally, the tariff level paid by the customers who do not receive the rebate should be high enough to repay the principal and interest at commercial terms. In some cases, other funding sources such as domestic tax revenues, grants and private finance may supplement the tariff receipts. Blended finance approaches will require potentially complex combinations of development finance, private finance and government subsidies to ensure that all target groups are being reached.

Urban settings

Substantial inequality exists between slum and non-slum households in access to water and sanitation facilities. The wealthier often enjoy high levels of service at low cost, whereas the poor pay a much higher price for a service of similar or lesser quality.

Peri-urban areas are often not included in service schemes when residents don't pay taxes or when their housing rental arrangements are part of the informal economy. As a result, many of the world's poorest and most disadvantaged individuals are not recognized or counted as part of the formal system, and most importantly find difficulty in gaining access to basic services, because they have no physical address and thus remain 'hidden' or 'lost' in aggregated statistics.

Traditional approaches to sanitation and wastewater management in urban areas tend to favour large-scale, centralized collection and treatment that allow for economies of scale. The population density in peri-urban areas may be too low to justify the cost of household connections, and not high enough to permit conventionally designed systems. Supplying groups of households (rather than individual households) in peri-urban low-income areas and large villages could reduce investment costs while still allowing a good service level for the poorest.



Farmer in a rice field, Thailand. © Paninda Wijitpanya/iStock/Getty Images

The provision of urban sanitation infrastructure lags far behind infrastructure for water provision in most urban settings, and the poorest residents of slum areas are the most affected. Moreover, significant improvement in water needs to be matched with a commensurate investment in sanitation. Although water supply systems are sometimes better served with smaller, easily managed networks, the challenges of wastewater and sludge management are often more complex. A main reason is the unwillingness to pay for sanitation services.

There have been numerous attempts to use resource recovery (water, nutrients, metals, biofuel) to offset some of the costs of service provision. Despite the additional recovery efforts, as with all ‘waste’, when it needs to be transported, the costs thereof often negate the benefits gained. Decentralized wastewater treatment systems (DEWATS) provide an alternative with substantially lower investment and operational costs and can offer more efficient solutions for given circumstances, including in certain peri-urban areas.

Rural poverty

More than 80% of all farms in the world are family farms smaller than 2 hectares. Smallholder family farmers constitute the backbone of national food supplies, contributing more than half of the agricultural production in many countries. Yet, it is in the rural areas that poverty, hunger and food insecurity are most prevalent.

Water infrastructure remains extremely sparse in poor rural areas, so that millions of rural women, men and children are not covered by water and sanitation services. Moreover, the institutional capacity, including domestic resource mobilization and budget allocations — both at national and subnational levels — has been insufficient to cater for maintenance needs of the installed water infrastructure.

Water management for smallholder family farmers needs to consider both rainfed and irrigated agriculture. Approximately 80% of the global cropland is rainfed, and 60% of the world’s food is produced on rainfed land. Supplemental irrigation in rainfed agricultural systems may not only ensure crop survival, but also double or even triple rainfed yields per hectare for crops such as wheat, sorghum and maize.

Ensuring secure and equal access to water in rural areas, while providing opportunities for future water investments, requires greater recognition of the water-related needs of small-scale irrigators in the context of their contribution to national food security. Water allocations to large-scale users, whether for irrigation or other purposes, must not take place at the expense of small-scale farmers' legitimate needs, irrespective of their ability to demonstrate formally sanctioned water use rights.

Refugees and forcibly displaced people

The world has been witnessing the highest levels of human displacement on record. Armed conflict, persecution and climate change, in tandem with poverty, inequality, urban population growth, poor land use management and weak governance, are increasing the risk of displacement and its impacts.

Away from home, refugees and internally displaced people (IDPs) are often faced with barriers to access basic water supply and sanitation services. Almost a quarter of these displaced people live in camps, but the overwhelming majority are hosted in cities, towns and villages. These refugees, asylum seekers, IDPs and stateless persons are often not officially recognized by local or national government and are therefore excluded from development agendas.

Away from home, refugees and internally displaced people are often faced with barriers to access basic water supply and sanitation services

Mass displacement places strain upon water resources and related services, including sanitation and hygiene, at transition and destination points, creating potential inequalities between existing populations and new arrivals. Host governments often refuse to accept that the displacement situation may become protracted, and insist that refugees/IDPs remain in camps with 'temporary' or 'communal' facilities at a lower level of service than the surrounding host community. The reverse situation may also occur, where refugees receive higher-quality WASH services than what is available for nearby communities.

States have a responsibility to ensure that all refugees/IDPs are granted the rights to adequate sanitation and water, without regard to their legal residence, nationality or other classifications that may serve as hindrances. Like all individuals, refugees/IDPs should have access to information and the opportunity to participate in decision-making processes that affect their rights.

States are encouraged to avoid 'encampment' policies for refugees/IDPs, as these can lead to marginalization (directly linked to legal status and the 'right to work' or 'freedom of movement'), which can exacerbate resource competition with host communities and make it difficult for refugees/IDPs to access labour markets. Instead, states are encouraged to pursue policies for the inclusion of refugees/IDPs within existing urban and rural communities.

Regional perspectives

The Arab region

Water scarcity on a per person basis in the Arab region will continue to increase due to population growth and climate change. The challenge of ensuring access to water services for all under water-scarce conditions is exacerbated in conflict settings where water infrastructure has been damaged, destroyed and targeted for destruction.

A large proportion of refugees tend to remain in protracted situations for decades. Humanitarian assistance has become increasingly intertwined with development work aimed at providing more permanent water supply and sanitation facilities in refugee camps and informal settlements. This has at times caused conflict and tensions with host communities, particularly if the parties do not have equal access to water services.



Refugees in Zaatari camp in Jordan. © UNHCR/B. Sokol, www.flickr.com, (CC BY-NC-SA 2.0)

Additional attention has been paid to this problem in recent years with governments, donors and humanitarian agencies recognizing that leaving no one behind means serving refugees and IDPs as well as host communities.

Asia and the Pacific

In 2016, 29 out of 48 countries in the region qualified as water-insecure due to low availability of water and unsustainable groundwater withdrawal. Water scarcity is compounded by the effects of climate change.

Natural disasters are becoming more frequent and intense, and disaster risk is outpacing resilience. This has major impacts for the provisioning of WASH services in areas affected by disasters, due to damaged water and sanitation infrastructure and water quality issues. It is also a significant challenge to provide adequate water and sanitation services to the areas that receive people who have been displaced from disaster-struck areas.

Disasters cause disproportionately higher losses to poorer countries and people, as these often lack resilience and the capacity to mitigate the impact of disasters. Disasters are also found to have impacts on gross domestic product (GDP), school enrolment rates, per capita expenditure on health, and can also cause the near-poor — those living on between US\$1.90 and US\$3.10 per day — to fall into extreme poverty.

Europe and North America

Access to safely managed sanitation services remains a challenge in many countries, especially in rural areas. While the situation is particularly severe for a major part of the population in Eastern Europe, the Caucasus and Central Asia, many citizens in Western and Central Europe, as well as in North America, also suffer from the lack of or inequitable access to water and sanitation services. Inequities are frequently related to sociocultural differences, socio-economic factors and the geographical context.

Inequities in access therefore must be fought on three fronts: by reducing geographical disparities, by addressing specific barriers faced by marginalized groups and people living in vulnerable situations, and by reducing affordability concerns.

Latin America and the Caribbean

Millions of people in the region are still without an adequate source of drinking water, while even more suffer the absence of safe and decent facilities for the disposition of excreta. Many people without access to services are concentrated in peri-urban areas, mainly in the poverty belts that exist on the periphery of many of the cities in the region. It has proved difficult to provide these marginal areas with services of acceptable quality.

In many countries, decentralization has left the water supply and sanitation sector with a highly fragmented structure made up of numerous service providers, without real possibilities to achieve economies of scale or economic viability, and under the responsibility of municipalities that lack the necessary resources and incentives to deal effectively with the complexity of the processes involved in providing services. Decentralization has also reduced the size of service areas and made them more homogeneous, thus limiting the possibilities for cross-subsidies and facilitating the 'cream skimming' that marginalizes low-income groups away from service provision.

Sub-Saharan Africa

The lack of water management infrastructure (economic water scarcity), in terms of both storage and supply delivery, as well as for improved drinking water and sanitation services, plays a direct role in the persistence of poverty in Sub-Saharan Africa.

People living in rural areas account for about 60% of the total population of Sub-Saharan Africa, and many of them remain in poverty. In 2015, three out of five of the region's rural residents had access to at least a basic water supply and only one in five had access to at least basic sanitation. About 10% of the population still drank untreated surface water, and many poor people in rural areas, particularly women and girls, spent a considerable amount of time collecting water.

More than half of the population growth expected by 2050 (1.3 out of 2.2 billion globally) will occur in Africa. Providing this growing population with access to WASH services, however, is not the only challenge for Africa, as the demands for energy, food, jobs, healthcare and education will also increase. Population growth especially occurs in urban areas, and without proper planning, this might lead to a dramatic increase of slums. Even if countries have steadily improved living conditions in urban slums between 2000 and 2015, the rate of new home construction lagged far behind the rate of urban population growth.

Strategies and response options

From a *technical perspective*, the potential responses to address the lack of drinking water supply and sanitation services to groups in disadvantaged situations can vary significantly from one place to another. Whereas sizeable high-density urban communities provide opportunities for large-scale centralized WASH infrastructure and facilities through resource-sharing and economies of scale, less costly decentralized water supply and sanitation systems have been shown to be successful solutions in smaller urban settlements, including refugee camps. For people in low-density rural areas, one main objective is to bring more adequate facilities closer to people's homes. The basic principle behind selecting WASH technologies is therefore not necessarily one of 'best practice', but one of 'best fit'.

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Insufficient *funding* and lack of effective *financing* mechanisms have created a barrier to achieving the WASH targets for disadvantaged and marginalized groups. A certain proportion of the investment gap could be overcome through increased system efficiency, which uses already available finances more effectively and can significantly reduce overall costs. However, targeted subsidies for vulnerable groups and equitable tariff structures will remain an important source of funding and cost recovery. The support of the international donor community will remain critical in the developing world but cannot be the main source of funding. Official development assistance

(ODA) is particularly helpful in mobilizing investments from other sources, such as commercial and blended finance, including from the private sector. However, it will be incumbent upon national governments to dramatically increase the amounts of public funding made available for the expansion of WASH services.

However, increasing the amount of funding and investment alone does not necessarily ensure that WASH services will reach all those who are most disadvantaged. Subsidies must therefore be appropriately designed, transparent and targeted, and tariff structures need to be designed and implemented with the objectives of achieving equity, affordability and the appropriate level of service for each targeted group.



Maasai man looking at landscape. © Jocrebbin/iStock/Getty Images

Scientific research, development and innovation are essential to support informed decision-making. Although some progress has been made in terms of designing equitable tariff structures that benefit — rather than penalize — people in poor and disadvantaged situations, further research and analysis into the economic dimensions of WASH services in support of inclusion is required. The information and capacity-building needs of disadvantaged rural communities are often similar to those described above for the urban poor, but also include knowledge related to water resource allocation and the securing of water rights. Monitoring progress is another important aspect of knowledge and capacity development. Disaggregated data (with respect to gender, age, income groups, ethnicity, geography, etc.) and social inclusion analyses are critical tools in determining which groups are at greatest risk of being ‘left behind’, and why. Further research in science and engineering is also needed to develop affordable, safe and efficient WASH infrastructure and related devices (e.g. mobile filters, toilets).

Community-based action is critical in addressing the root causes of ‘leaving people behind’ with respect to water and sanitation. Good governance seeks to move away from hierarchical power structures while embracing concepts of accountability, transparency, legitimacy, public participation, justice and efficiency — principles that are in line with the HRBA. Water resource allocation mechanisms can be established to achieve different socio-economic policy objectives — such as safeguarding food and/or energy security, or for promoting industrial growth — but ensuring that enough water is available (and of suitable quality) to meet everyone’s basic human needs (for domestic as well as subsistence purposes) must be a guaranteed priority.

The linkages between water and *migration* have been attracting increasing attention, although they have yet to be fully incorporated into international migration policy. The WASH-related challenges faced by refugees and IDPs require special focused political responsiveness. In the case of service provision in refugee camps, harmonization of service levels with surrounding community/national standards is essential for combatting social discrimination and creating access equality.

All actors involved in the realization of the human rights to water and sanitation on a non-discriminatory and equal basis hold specific obligations and responsibilities. Human rights define individuals as rights-holders entitled to water and sanitation, and states as duty-bearers that have to guarantee access to WASH for all, using the maximum of their available resources. Non-state actors also have human rights responsibilities and may be held accountable for the infringement of human rights. NGOs and international organizations can play an important role in service provision and need to ensure substantive equality and accountability in such endeavours. International organizations, such as the United Nations, international trade and financial institutions, and development cooperation partners are called upon to ensure that their assistance is channelled towards the countries or regions that are least able to realize the rights to water and sanitation.

Coda

People from different groups are 'left behind' for different reasons. Discrimination, exclusion, marginalization, entrenched power asymmetries and material inequalities are among the main obstacles to achieving the human rights to safe drinking water and sanitation for all and realizing the water-related goals of the 2030 Agenda. Poorly designed and inadequately implemented policies, inefficient and improper use of financial resources, as well as policy gaps fuel the persistence of inequalities in access to safe drinking water and sanitation. Unless exclusion and inequality are explicitly and responsively addressed in both policy and practice, water interventions will continue to fail to reach those most in need and who are likely to benefit most.

Improving water resources management and providing access to safe and affordable drinking water and sanitation for all is essential for eradicating poverty, building peaceful and prosperous societies, and ensuring that 'no one is left behind' on the road towards sustainable development. These goals are entirely achievable, provided there is a collective will to do so.

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