MANUAL ON THE HUMAN RIGHTS TO SAFE DRINKING WATER AND SANITATION FOR PRACTITIONERS

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Girls using a pump for drinking water on the island of Sumba, Indonesia © Robert Bos, IWA

Chapter 3 Translating the human rights to water and sanitation into operational terms

SYNOPSIS

This chapter introduces the human rights criteria and principles for safe drinking water and sanitation. It discusses how to bring them to expression in operational terms in a way aimed to satisfy both the human rights community and the water and sanitation practitioners.

A large part of successfully implementing the HRWS relies, indeed, on translating these criteria and principles, which have been formulated in legal language, into a terminology that is readily understood by the providers and regulators of water and sanitation services. These practitioners should be able to apply them in their day-to-day operations without ambiguity. The chapter therefore starts with a brief reflection on definitions.

3.1 DEFINITIONS

Increasingly, communicating across professional, disciplinary and sectoral boundaries is of vital importance. The recent focus on the nexus between water, food and energy is a case in point. Breaking down silos can, however, be a source of confusion, misunderstandings and inefficiency that challenges professionals and non-professionals alike. "Speaking each other's language" is not only about the correct and unequivocal interpretation of terminology, it is also about trust in each other's professional capacities and in the concepts developed in the counterpart's field of expertise.

Colloquial use of terminology is often inaccurate and a source of misunderstanding. In relation to human rights, the terms equity and equality, for example, tend to be used interchangeably by the public at large, but have a clearly defined, distinct connotation in human rights language. Equity is a subjective term referring to a sense of societal fairness; equity is negotiable and may vary in different socio-cultural settings. Equality, on the other hand, is an absolute concept with a clear legal basis: inequalities in access to water and sanitation are not only morally unacceptable, but they are prohibited under international law.

Terms for the basic building blocks of the arguments made in this and subsequent chapters need to be understood in the same way by the diverse readership of this handbook.

One example is that of the terms standard, norm, criterion and indicator. For this Manual they are defined as follows:

- Standard: a value or good practice established by an authority as an agreed target or threshold to strive for, voluntarily or as a legal obligation, often in response to its societal desirability.

- Norm: a standard of development or achievement derived from the average or median achievement of a large group of society as a whole.
- Criterion: an agreed standard or norm on which a judgement or decision is based.
- Indicator: a measure or metric of the state, level or trend of a phenomenon or process.

Another example is that of the terms policy, strategy and programme. These may be interpreted differently in different sectors. In the context of this Manual they are defined as follows:

- Policy: an intended course of action, with clear criteria, to achieve an agreed objective.
- Strategy: the optimal allocation of limited resources to support a policy, programme or process aimed to achieve agreed goals, objectives and targets.
- Programme: a structured plan of projects, activities and events to accomplish agreed objectives or produce agreed outputs.

Five normative criteria (availability, quality, acceptability, accessibility, affordability) and five principles (equality and non-discrimination, accountability, sustainability, participation, and access to information and transparency) serve as benchmarks for the progressive realisation of the HRWS. The criteria are presented and defined separately below for drinking water and for sanitation; subsequently, the principles are discussed.

3.2 THE NORMATIVE HUMAN RIGHTS CRITERIA: DRINKING WATER

3.2.1 Availability

Safe and clean water has to be available for household use, in public buildings and at the workplace. As a criterion, availability refers to both sufficient quantities of water and reliability of service provision. Associated with reliability is continuity, not just for the current but also for future generations. This raises important operational considerations, which are covered under the principle of sustainability, including system robustness and resilience. The criterion of accessibility is related to availability and is considered separately in section 3.2.4.

For household use, water should be available in sufficient quantity to meet requirements for drinking and personal hygiene, and for cooking, food preparation, dish and laundry washing, and cleaning. The human rights framework refrains from providing a global, absolute value to define “sufficient quantity”, as this will depend on contextual factors. An indication for a range of values may be derived from the report of a study by the World Health Organization (WHO 2003), which presents quantities based on levels of service and linked to levels of public health concern—see Table 3.1.

Availability is specifically addressed in the legal framework for water and sanitation services in South Africa. In 1996, the new Constitution of South Africa took effect, with its Chapter 2 presenting a Bill of Rights including three clauses establishing the right to water, with the related functions specified as pertaining to “local government matters”. Followed by the 1997 Water Services Act (which clearly defines “basic water supply” and “basic sanitation”) and the 1998 National Water Act (ensuring priority water allocation for basic human needs), this created the framework for the 2002 Free Basic Water Implementation Strategy, aimed at the provision, for free, of 6000 litres of safe drinking water per household per month (based on demographic statistics: around 25 litres per person per day). Average water consumption in South Africa is higher, and the price for purchasing additional amounts of water is fixed according to incremental tariff blocks. The cost recovery thus achieved is supposed to ensure the operation, maintenance and further expansion of all services. The South-African case is of particular interest because it introduced the human right to water and sanitation into its legislation long before its acknowledgement by the United Nations. Therefore, details of this case are presented in Box 3.1.

Table 3.1 Summary of requirements for water service levels to promote health (l/p/d: litres per person per day; adapted from WHO 2003).

Service level	Access measure	Needs met	Level of health concern
No access (quantity collected often below 5 l/p/d).	More than 1000 metres or 30 minutes collection time.	Consumption—cannot be assured. Hygiene—not possible unless practised at source.	Very high
Basic access (average quantity unlikely to exceed 20 l/p/d)	Between 100 and 1000 metres or 5–30 minutes total collection time.	Consumption—should be assured. Hygiene—handwashing and basic food hygiene possible, laundry/ bathing difficult to be assured unless carried out at source.	High
Intermediate access (average quantity about 50 l/p/d).	Water delivered through one tap on-plot (or within 100 metres or 5 minutes collection time).	Consumption—assured. Hygiene—all basic personal and food hygiene assured; laundry and bathing should also be assured.	Low (provided absence of contamination is rigorously assessed)
Optimal access (average quantity 100 l/p/d).	Water supplied through multiple taps continuously.	Consumption—all needs met. Hygiene—all needs should be met.	Very low

Box 3.1 A timeline of South Africa's road to universal rights to water and sanitation

1994 "Meeting Basic Needs" was one of the four pillars of the Reconstruction and Development Programme of the new, first democratic government of the Republic of South Africa (RSA) that took office in 1994. One basic need was made a priority: access to water supply and sanitation services. At the time an estimated 14 million South Africans lacked access to adequate water supply, and 21 million to adequate sanitation, out of a total population of 39 million.

1996 A new Constitution came into effect in 1996, including a Bill of Rights with a clear reference to the right to water and sanitation:

- Chapter 2, clause 24: "Everyone has the right […] to an environment that is not harmful to their health and well-being".
- Chapter 2, clause 26: "Everyone has the right to have access to adequate housing".
- Chapter 2, clause 27: "Everyone has the right to have access to health care services, […], sufficient food and water, […]."

and acknowledging the concept of progressive realisation by stating: "The State must take reasonable legislative and other measures within its available resources to achieve the progressive realization of these rights."

1997 The Water Services Act (Act 108 of 1997) further defined "basic water supply" and "basic sanitation". Moreover, it established the Constitutional responsibility of municipalities as follows: "Every water services authority has a duty to all consumers and potential consumers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services."

(continued)

Box 3.1 A timeline of South Africa's road to universal rights to water and sanitation (continued)

1998 The National Water Act sets the legal framework for water resources management and water allocation, including the introduction of the concept of "reserve", as a first priority in allocation—referring to the basic human needs reserve and the environmental reserve for basic ecosystem services.

2002 Standards for basic water supply and basic sanitation emerged from an extended process of consultation at all levels, and became formally part of national legislation with their publication in the South Africa Government Gazette in 2002:
The minimum standard for basic sanitation services is:
The provision of appropriate health and hygiene education; and a toilet which is safe, reliable, environmentally sound, easy to keep clean, provides privacy and protection against the weather, is well ventilated, keeps smells to a minimum and prevents the entry and exit of flies and other disease-carrying pests.
The minimum standard for basic water supply services is:
The provision of appropriate education in respect of effective water use; and, a minimum quantity of potable water of 25 litres per person per day or 6000 litres per household per month at a minimum flow rate of not less than 10 litres per minute; within 200 metres of a household; and, with an effectiveness such that no consumer is without a supply for more than seven full days in any year.

The successful translation of these laws, policies and programmes was driven by multiple factors:

- sound policies with practical roots
- total political commitment at all levels of Government
- a strong technical department: the Department of Water Affairs
- clear roles and responsibilities
- substantial budgetary allocations
- deployment of sufficient technical skills at the right levels
- priority attention to proper planning
- well-designed existing water supply systems with excess capacity
- good marketing and branding
- fast-tracking projects ready for implementation.

1994–2004 13.4 million additional people provided with basic water supply services, 6.9 million additional people with sanitation. To revert a process of regression in access levels for the poorest and most vulnerable households, a basic free water supply of 25 L/p/d; 6000 L/household/month was introduced. The technical, financial and managerial capacity required for the successful implementation of this model was unfortunately not always available at the municipal level.

2011 Almost 20 years after the new Constitution of the RSA laid the foundation for the rights to water and sanitation, the population has increased from 39 million to 51.7 million (2011)—with 91.2% of households enjoying piped water supply in their house or yard, while 60% of households enjoy the benefits of a flush toilet, and 9% have access to a VIP latrine. However, 5% of household still has no facilities at all and has to resort to open defecation.

Extracted from Muller (2014).

As stated, the human rights framework does not propose an absolute value for the availability criterion, yet in view of the public health concerns implied in Table 3.1, this Manual recommends that water service providers should achieve at least the immediate access service level of 50 litres per person per day. It is recognised, however, that this level of availability may not be achievable continuously in areas where water scarcity prevails during part or all of the year. Under such circumstances, the law must prioritise water for human consumption and domestic use over other water uses.

In conclusion, there is no global benchmark for the human rights criterion of availability, in part because of lack of evidence and in part because availability is contextually determined. As for reliability of service, milestones towards what can be referred to as such – ultimately: 24/7 service – remain poorly defined. An arbitrary, but often quoted indicator value for reliability is "and interruption of services of no more than 7 days per annum". Another indicator is the level of preparedness of service providers to emergency situations.

Aspects of immediate concern to regulators should be captured in regulatory frameworks to ensure the availability of drinking water under special circumstances:

- to serve those without a permanent dwelling, such as homeless people or nomadic communities, without any risk of discrimination whatsoever;
- to provide access through water points in institutional facilities (such as schools, hospitals, health and detention centres) in sufficient numbers, to address the specific needs of children, the elderly and the disabled, and of detainees (such as prisoners, refugees and asylum-seekers);
- to support, technically and, where needed, financially, the self-provision (abstraction and treatment) of drinking water for those who do not have a public service at their disposal.

3.2.2 Water quality and safety

As a matter of principle and definition, all drinking water should be free from pathogens and toxic levels of chemicals. Supporting documents for the HRWS refer to the World Health Organization Guidelines for Drinking-water Quality (WHO 2011a) for issues related to the water quality/safety criterion. Absolute safety is an aspirational goal. In real life it is impossible to eliminate all water-associated hazards and their inherent health risks. Acceptable risk levels are linked to social acceptability and to the affordability of managing the risks. The "level of safety/cost" curve is one of diminishing returns. This means that the application of singular standards worldwide is not feasible.

Water safety planning (WSP) is a valuable practice that helps to identify the main risks to drinking water safety and provides a basis for the establishment of priorities for the incremental improvement of standards, set against health-based targets (WHO/IWA 2009; WHO 2011a). The emphasis is on using available financial and human resources optimally to the benefit of most people through the delivery of basic levels of 'safe' drinking water. This WSP concept of incremental improvement is fully congruent with the concept of progressive realisation. Yet, in the context of a rights-based approach, authorities, providers and regulators must pay special attention to the most vulnerable groups for whom the risks from poor quality drinking water are greatest. These include not just the poor and dis-enfranchised in general, and children and the elderly in particular, but also people with a lowered resistance to infectious diseases—those who are HIV-positive and those who have undergone organ transplants.

Drinking water quality management has two distinct entry points, one related to the standards to be met on a day-to-day basis under routine operating conditions, the other related to managing incidents that threaten or affect drinking water quality and may result in disease outbreaks. In both cases the human rights principles must be part of decision-making. In regions with seasonal water scarcity, the urgency of water quality issues may fluctuate with the seasons. Extreme weather conditions may have the same

effect in a condensed timeframe. Under conditions where water quality periodically becomes a critical factor, effective measures must ensure that the burden of poor water quality does not fall on the most vulnerable.

For service providers, the quality of water delivered at the point of supply to the consumers is of primary concern. For piped systems, distribution aspects need to be considered in addition to water resource and treatment aspects (WHO 2014). Household water transport (from the standpipe to the house) and storage carry their own water quality risks, but these are not the responsibility of the water service provider. Nevertheless, in the spirit of participation and communication, providers should advise consumers on the management of these risks through consumer representatives or through local government information systems.

Global monitoring of progress towards the drinking water target under Millennium Development Goal 7 (MDG7) used "the percentage of people using improved sources of drinking water" as a proxy indicator. Improved sources imply a technically-defined assumption that water from such sources has a high probability of being safe. According to this definition, an improved source is one where drinking water is protected from outside contamination, especially from faecal matter. At the start of MDG monitoring in 2000, there were unsurmountable constraints, of a technical and financial nature, on carrying out water quality testing in all countries on a nationally representative basis. It has since been recognized that this limitation has excluded at least one billion people and most likely many more from the global estimates of people lacking sustainable access to safe drinking water.

The indicator for measuring progress towards target 6.1 under Sustainable Development Goal 6 (see Annex B) will address drinking water quality. The indicator, "the percentage of people using safely managed drinking water services", will include a water quality criterion. Reliable and affordable technology has been developed to measure drinking water quality as part of household surveys. The relevant indicator element is "compliance with faecal and priority chemical standards". This also is a minimum requirement of the HRWS and, therefore, its monitoring represents a major contribution to their full realisation.

3.2.3 Acceptability

Acceptable appearance, taste and odour of water are highly subjective parameters, and perceptions of these characteristics depend critically on local ecology, culture, education and experience. Therefore, it is not possible to set clear and objective global acceptability standards. These aesthetic properties are not generally related to water safety: high-risk contaminants are often colourless and may have no taste or odour. The real risks frequently arise from the general public's preference for seemingly clean, tasteless and odourless water which nevertheless may be microbiologically or chemically contaminated, over water that scores poorly on external acceptability criteria but poses no health risks.

3.2.4 Accessibility

Water has to be accessible, including for children, the elderly and the disabled. The distance from the household or the work place to the water source should be within everyone's reach. What does it mean in operational terms to ensure a reliable supply on a continuous basis at home, at work, in school and in other public places?

For household piped supplies to satisfy an intermediate service level (see Table 3.1), there should be a tap or standpipe (or kiosk) providing a reliable water supply within 100 metres, or five minutes total collection time, at specified times of each day (see example from Zambia in Box 3.2). In many instances, continuous (24/7) supplies may not be immediately feasible. Yet, a continuous supply is an essential

Box 3.2 Dealing with accessibility in Zambia

For a long time, informal settlements in peri-urban areas in Zambia were denied any public services as they were considered illegal and candidates for demolition; people living in these informal settlements were liable to eviction. This changed when nearly all the peri-urban settlements were legalised in the late 1990s subject to formal planning. The formal planning was not forthcoming and the burden of diseases due to lack of safe water supply and sanitation facilities was overwhelming. The Government of Zambia promulgated a water supply and sanitation law in 1997 and provided for the establishment of a trust fund that targeted expansion of services to low-income areas. With support from the Government and with cooperating partners supplementing the water utilities, basic water services are now provided to the urban poor, with the Fund helping to secure a price that is regulated and with a guaranteed water quality. Access to water from public kiosks had grown exponentially to nearly 90% by 2010 thanks to the interventions by the Fund.

Source: Osward Chandra (African Development Bank), personal communication.

longer-term requirement to achieve a sustainable service within the limitations of available water resources. Section 3.4.3 on sustainability discusses why 24/7 access is essential in the case of piped supplies. At work, school and public places, the water supply should be accessible throughout the periods the premises are open.

For well supplies, it may not be technically feasible to have wells providing access within 100 metres from the home, but the total collection time should not exceed 30 minutes.

Starting 2016, the WHO/UNICEF Joint Monitoring Programme (JMP) will track progress towards the SDG6 target 6.1: *By 2030, achieve universal and equitable access to safe and affordable drinking water for all.* The indicator, the percentage of people using safely-managed drinking water services, includes accessibility parameters at two levels:

- Basic drinking water services – a source or delivery point that by nature of its construction or through active intervention is protected from outside contamination, in particular from contamination with faecal matter. In the case of water collection points this implies a total roundtrip collection time of no more than 30 minutes including queuing.
- Safely-managed water services – as a next rung on the drinking water service ladder, this parameter measures the percentage of people using an improved water source available on premises, when needed and free of faecal and priority chemical contamination. This parameter is to be measured through household surveys and by regulator surveillance.

The “basic drinking water” level does not comply with the criteria for the human right to safe drinking water; the “safely-managed water services” represents an important step in the realisation of the human right to safe drinking water. The JMP envisages a next higher level to be “sustainable drinking water services”, defined as the percentage of people using a safely-managed drinking water source that reliably provides expected levels of service, and is subject to robust regulation and a verified risk management plan (see Annex B).

3.2.5 Affordability

Water facilities and services must come at a price that is affordable to all people. Although this is a simple statement, its practical implications are complex. It has been stated explicitly that the HRWS does not

mean that services should be available for free. Any service, whether provided publicly or privately, requires sustainable cost recovery, defined as "costs that are recovered so that a water services undertaking can achieve and maintain a specified standard of service, both for the present and future generations" (Rouse 2006). Any cost recovery scheme must include financial resources to ensure at least smooth operations, adequate maintenance and timely replacement of assets.

There is no absolute yardstick for affordability of water, sanitation and hygiene (WASH) services, even though some development agencies apply a threshold in a range of 3–5% of household income, which has its origin in World Bank practice. Such a global yardstick is debatable from a human rights perspective as it ignores income inequalities and contextual differences in purchasing power.

The two important components of service charging are the one for access to the water supply network (the connection charge) and the one for water consumption (the water price). Where access levels are low in rapidly expanding communities, the connection costs can be a significant part of total service cost. They will also be above average for populations in sparsely populated areas. Connection costs may represent a high one-off expenditure for households and one they cannot afford. As a one-off cost, it is a good target for government subsidies. As such, it is to be preferred over subsidising water consumption which benefits those who already have access to a water supply service. Another approach, as taken for example in Chile, is to arrange for the connection cost to be payable in affordable monthly instalments over a longer period of time (in the Chile example: 5 years).

Where a large proportion of the population is already covered, one possible solution may be to include the costs of new connections in the regular tariff of every household serviced. This implicitly means cross-subsidising the costs of new connections. Appropriate technical solutions should be identified for expanding into unserved areas, balancing aspects of affordability and quality of service.

Realistic and fair pricing of connection and consumption charges is a matter for public authorities, often regulators, to be implemented by utilities and other water service providers. Water service providers require that pricing policies reflect practical aspects both of cost recovery and of revenue collection. Water pricing is politically sensitive. It is, therefore, highly desirable to have overall cost recovery levels determined objectively by an independent body. Establishing and updating pricing policies should take into account the providers' advice to government. It may include, for example, advice on the use of cross-subsidies and how government subsidies might be targeted at the poor. The dialogue between providers and regulators should be governed by the human rights principles of transparency and information exchange. Involvement of the public in this dialogue is vital to create broad-based understanding and support for decisions on water pricing regimes that may be inherently unpopular.

Another important determining factor of affordability is method of payment. For those who are living in poverty it is not conceivable to put money aside to pay monthly water bills. Their reality is to meet their basic needs on a daily basis, paying frequently in small amounts. This can be accommodated in several ways: using pre-payment meters accompanied by a lifeline tariff or the establishment of water kiosks where people can purchase 20 litres at a time. The establishment of a network of offices where bills can be paid, franchising payment facilities, for example through supermarket chains, or payment by mobile phone will help maintain transaction costs low.

General subsidies (budget support to utilities) do not encourage water service providers to seek greater efficiency and they are unreliable especially in difficult economic times. Government policy should target subsidies to assist the poor or other disadvantaged groups while keeping the objective of water services becoming financially self-sufficient. A good example of a financially self-sufficient utility, with affordable services for all, is the one serving the capital of Cambodia, Phnom Penh (see Box 3.3).

Box 3.3 The case example of the Phnom Penh Water Supply Authority (PPWSA)

The PPWSA is the public utility mandated to provide drinking water supply services to the residents of Cambodia's capital city. In 1993, only 25% of urban households enjoyed piped water connections, and 73% of the utility's output was non-revenue water. Twenty years later, these figures have improved to a level of 90% access for the cities households, and a reduction of non-revenue water to 6%.

Following an internal restructuring of the Authority when Mr Ek Sonn Chan took over as its General Director in 1993 (focusing on managerial and procedural change and the elimination of corruption), the Authority started a process of outreach. Effective public consultations organised by the PPWSA resulted in people understanding the need for charges to cover costs incurred by service provision, maintenance of the infrastructure and expansion of the system. Through the consultations, users were encouraged to report leakage and illegal connections. Out of 38 informal settlements, 32 were provided with piped water for the first time; in the other six municipal standpipes were installed. These system extensions to poor areas were funded from the utility's revenues, with government subsidies exclusively directed towards connection charges, proportional to levels of poverty. There is ongoing provision for low-income groups; water bills can be paid in instalments. A progressive tariff applies, with a lifeline tariff for the first band of seven m^3/month. Within 13 years since the PPWSA started to develop its own programmes, the utility had become financially self-sufficient. It is an excellent example of progressive realisation.

Source: http://successfulsocieties.princeton.edu/interviews/ek-sonn-chan

3.3 THE NORMATIVE HUMAN RIGHTS CRITERIA: SANITATION

The right to sanitation differs from the right to safe drinking water in its lack of robust technical definitions in international law and the absence of a consistent and stable attribution of institutional and individual roles and responsibilities in governance and service provision. Based on a declaration of the UN Expert Committee on Economic, Social and Cultural Rights, the right to sanitation is commonly understood as the right of everyone to have access to adequate, safe sanitation that upholds the dignity of the user and is conducive to the protection of the environment and public health. This definition was updated by the recent UNGA Resolution A/RES/70/169 (see Box 1.1). The right to sanitation also includes the right of individual households not to be inundated with waste effluent from their neighbours.

The concept of this right is derived from a broader definition of sanitation: the collection, transport, treatment and disposal or reuse of human excreta or domestic wastewater, whether by traditional or simplified collection systems or by installations serving a single household, appropriate to protect public health, human dignity and the environment. This definition further emphasises some of the gaps and ambiguities in our appreciation of what adequate sanitation is and who is responsible for which component along the sanitation chain. The risks to public health and the environment arising from inadequate handling of wastewater and excreta underline the fact that it is not sufficient to collect or remove them, but that adequate treatment, preventing environmental contamination and safeguarding human health, is essential. In this broader concept, sanitation is linked more intricately to various elements in the human rights framework.

Sanitation facilities can serve individual households, they can be shared between households, or they can be public. The disposal of human waste can be on-site (latrines), or through decentralised or centralised treatment plants fed by sewerage networks or tanker trucks periodically emptying septic tanks or sometimes latrines. Ecological sanitation systems, separating urine and faeces for distinct processing

and re-use are becoming increasingly important. Sanitation services can be provided by public utilities, a private enterprise or a public–private partnership. Informal handling of human waste covers a spectrum stretching from on-site, dry composting to the use of domestic wastewater flowing out of cities for small-scale peri-urban agriculture.

The balance between public and private sanitation service provision is determined, in part, by the technical and economic feasibility of the different options. The important added value of the new human rights framework is that it creates the obligation to ensure access to safe sanitation to those people who "fall between the cracks" in this incomplete maze of services, for reasons of inequality or discrimination.

3.3.1 Availability

Safe sanitation facilities must be available to everyone, everywhere: at home, at the workplace and in public places. This criterion should address both capacity and continuity.

Regardless of the type of facility (public, shared or private), sanitation systems should be designed to minimum standards that ensure their functioning is sufficient under normal operating conditions. Realistic safeguards to prevent overflows, blockages and other system malfunctioning must be part of the design. For new infrastructure, extreme weather conditions, including those resulting from climate change, need to be taken into consideration, especially because informal settlements where the poor, vulnerable and those who are discriminated against live are disproportionally affected by such conditions.

In the case of private or shared facilities, the responsibility of operators starts with the evacuation of waste to disposal sites or to treatment plants, which may be central or decentralised. It is the responsibility of public authorities and regulators to establish a framework of enforceable measures that ensure safe sanitation facilities are available:

- in public places in sufficient numbers, addressing the specific needs of men, women and children, the elderly and the disabled;
- to serve those without a permanent dwelling, such as homeless people or nomadic communities;
- in institutional facilities (such as schools, hospitals, health and detention centres) in sufficient numbers, addressing the specific needs of men, women and children, the elderly and the disabled, and for detained people (such as prisoners, refugees and asylum-seekers).

The continuity component of availability implies that collection and treatment should function at all times at an adequate capacity, that a well-established and clearly communicated schedule of periodic emptying of septic tanks is deployed, and that in public sanitation facilities and facilities in institutions acceptable hygienic conditions are maintained at all times.

3.3.2 Quality

Quality standards for sanitary facilities should address several safeguards limiting risks associated with their use. Safeguards are location-specific, are linked to the level of sophistication of the facility and take into account the prevalence of different diseases associated with poor sanitation (so-called water-washed diseases). Clear standards and procedures should be defined regarding the minimum hygiene conditions for public sanitation to guarantee their consistent quality. Some specifications for VIP latrines are presented in Box 3.4.

The quality and effectiveness of wastewater management are critical in minimising the several potential impacts on the environment, on public health and on human well-being. Public utilities or private companies operating sanitation services are responsible for ensuring that wastewater is effectively collected, treated and disposed of in compliance with established regulations. Primary concerns driving

Box 3.4 An example of quality sanitation: the VIP latrine

The Ventilated Improved Pit (VIP) latrine, developed and promoted by Professor Peter Morgan, at the time Director of the Blair Research Laboratory in Harare, Zimbabwe, features several safeguards. It consists of a pit, covered by a concrete slab with a hole in it, with a superstructure including a door for access and privacy, and a black ventilation pipe. Its safety features include the slab with the small hole, which allows for proper cleaning and prevents children from falling into the pit, the superstructure, which keeps snakes and other dangerous animals out, and insect screening in the vent pipe, which prevents the pit latrine to become a breeding place for flies. Sunrays on the black vent pipe produce a circulation of air reducing faecal odours and adding to the aesthetic quality of the latrine.

VIP latrines have been widely introduced in rural communities in Africa, Asia and Latin America; they have also been constructed in a grid pattern in the fields of agricultural production systems, especially in areas endemic for schistosomiasis (bilharzia) to serve farmers working in the fields.

Sources: Morgan 2011; Chimbari 2012; Chimbari *et al*. 1993.

these regulations relate to direct risks of faecal contaminants to the population, as well as to risks of drinking water source contamination. The role of regulatory bodies with respect to wastewater management is rapidly evolving, and in some countries well-defined.

3.3.3 Acceptability

Sanitation facilities and infrastructure should be well-managed to avoid adverse impacts on the well-being of individuals and communities, and on the environment. Perhaps even more than for water supply services, acceptability of sanitation facilities has strong cultural overtones. However, no-one wants to use a facility that is filthy, unhygienic and smells bad. For example, some of the reversal reported from community-led total sanitation (CLTS) projects which promoted dry pit latrines has its origin in issues linked to acceptability considerations (Kunthy and Catalla 2009). In Box 3.5, relevant analyses of supply chain and demand drivers, as a basis for marketable sanitation designs, are presented in detail. In general terms, the role of operators and regulators in connection to acceptability needs further definition. Their role is obvious, however, with respect to the maintenance of public facilities under their direct responsibility.

3.3.4 Accessibility

Standards for public sanitation services should be established, to ensure access for all: men, women, children and disabled people. Measures should include safeguards against harassment and assault, especially at night.

With respect to access to waste management infrastructure, public and private operators alike need to apply transparent criteria for entitlements to connection to a sewerage system, or conditions that need to be met to allow for effective waste removal from septic tanks. For private or shared sanitation facilities, the responsibility for ensuring access for all lies within the individual household or the households sharing a facility. In the absence of private or shared facilities, the public authorities, where feasible in partnership with a private sector entity, should guarantee access to public facilities within a reasonable distance.

The provision of sanitation in schools needs to pay priority attention to the gender aspects—absence of separate facilities for boys and girls infringes on the right to education, as it has been shown to keep girls from attending. The absence of sanitation facilities in health centres provides a stark example of how the right to sanitation and the right to health are intertwined (Bartram *et al*. 2015).

Box 3.5 Cambodia: supply chain and demand assessment as a basis for sanitation design

The global data on access to sanitation presented by the WHO/UNICEF Joint Monitoring Programme (JMP) in 2010 placed Cambodia with only two other countries outside of Africa south of the Sahara as having a rural sanitation coverage below 20% - with 80% of the population living in rural areas. This has serious consequences in terms of public health, the environment, water resources quality, economic development and human dignity. The World Bank's Water and Sanitation Program therefore initiated assessments of sanitation supply chains and of demand for sanitation. Surveys were undertaken in a representative transect of rural and urban populations, including villages that had been exposed to community-led total sanitation (CLTS). Both assessments revealed the importance of acceptability in the selection of options.

Potential supply side interventions considered in the surveys included low-cost latrine designs, availability of components and materials to upgrade sanitation facilities over time, better coordination of the efforts of different actors in the supply chain, and greater engagement of micro-finance institutions.

On the demand side, the potential interventions tested included stimulation of demand through informed awareness creation, financial schemes – such as payment in instalments – to increase affordability and demand among the poor, promotion of collective purchases which create economies of scale and social pressure, and smart subsidies with co-payment by the recipient to underline the real value of latrines.

The survey results underscored the importance of the desirability of certain options. In a ranking of desirable facilities, dry latrines score below open defecation in the field; a wet flush latrine is considered the most desirable among low-cost options. This finding was supported by the earlier work of Kunthy and Catalla (2009) showing a reversal of dry latrine use back to open defecation of over 50% in some villages. The conclusion from the demand side analysis was: promote pour-flush latrines, which are also more marketable, keep the choices limited in terms of design options, and focus on true aspirations to make investing in sanitation relatively attractive. From the supply-side perspective it was clear that no dramatically new design was needed, but rather an improvement in the production process that makes the pour-flush latrines more affordable and therefore easier to market.

Source: Rosenboom *et al*. 2011.

3.3.5 Affordability

Most of the principles referred in section 3.2.4 on affordability of access to safe drinking water also apply to sanitation services (see also Box 3.6). To be affordable, the cost of sanitation services should be proportionate to the households' disposable income. This proportion not only depends on several socioeconomic factors, but is also contextually influenced by cultural perceptions. Moreover, the concept of willingness to pay will have greater prominence in the affordability of sanitation services than for drinking water supply services, as sanitation is often not a priority expenditure compared to water, food and medicine. It is generally assumed that facility ownership is an incentive for households to invest, to the extent possible, in its maintenance.

In many countries there is no explicit tariff for sanitation because of the existence of mechanisms for cross-subsidising from the revenues from drinking water supply services. This has its roots in the fact that there is a greater willingness to pay for drinking water supply than for sanitation services. Also, combined billing can contribute to cutting administrative costs. In many instances it is, however, recommended to maintain a separate tariff-setting, specified billing and a distinct cost-recovery mechanism

Box 3.6 Considerations with respect to affordability of both water and sanitation services

In his 2015 report to the UN Human Rights Council, Léo Heller, the UN Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation, highlights issues related to the affordability criterion. Several of these are of immediate relevance to providers and regulators (see also section 7.2 of this Manual). The central theme revolves around the question of maintaining a balance between the economic sustainability and the affordability of services. Dr Heller argues for a shift in thinking, including in the philosophy of service providers: universal affordable services must be the starting point, and economic instruments must be re-designed to achieve the objective of reconciling economic sustainability with this. Several actions and topics are important in this connection:

- **Costs**: a sound analysis of costs will allow the redesign of economic instruments to promote affordability; these include not only the capital, investment costs and recurrent, operational costs, but also the costs of corruption, poor governance and deficient management, and the cost of inaction.
- **Standards**: affordability standards in support of regulation and tariff setting can only be defined in local contexts and in a participatory manner.
- **Disconnection**: in the case of non-payment of services, the burden is on the provider to prove that customers are not paying because they are unable to; and disconnecting households is only permissible if there is evidence of deliberate non-compliance without financial obstacles to paying. Before introducing pre-paid water meters as a way to achieve payment compliance, affordability and the availability of minimum quantities of water in cases where a household is unable to afford the service, must be carefully investigated (see also section 7.3 of this Manual).
- **Mechanisms to ensure affordability in practice**: providers must assist governments in developing and accurately targeting these mechanisms, which include appropriate pricing, tariff structure design and subsidies. In Dr Heller's paper, the challenges around targeting are described in detail and they are relevant to providers and regulators.
- **Tariff schemes**: the design of the tariff scheme is fundamental in achieving universal affordability: flat rates, uniform volumetric tariffs, differential pricing and connection charges all need consideration from the affordability perspective. Monitoring and regulation have to ensure adaptive management of tariff schemes.

Source: 2015 Report of the UN Special Rapporteur.[4]

for sanitation, in order for users to acknowledge the value of the service that is provided, but also for the sake of transparent accounting for each of the services. This should help reduce under-investment in sanitation which perpetuates the gap between service provision for water supply and for sanitation.

There are mainly two kinds of cost for sanitation services for end-users: the connection charges typically represent a bigger affordability challenge as a single instalment; therefore, they represent a higher obstacle to accessing the service. When the public service is widely accessible, priority should be given to subsidy mechanisms targeted to deal with this challenge. On the other hand, if no public service is available, public support for the installation of on-site sanitation facilities is a viable option, provided it targets those in need and is accompanied by a campaign promoting the use of the facilities. A regulatory framework should be in place to ensure the periodic emptying of on-site solutions, such as septic tanks, at an affordable price.

[4]Report of the UN Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation, 30th session of the UN Human Rights Council, August 2015: "*Affordability of water and sanitation services*". http://www.ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/AnnualReports.aspx.

3.4 HUMAN RIGHTS PRINCIPLES

3.4.1 Equality and non-discrimination

Water and sanitation services must be provided without any form of discrimination. Water and sanitation service providers therefore must ensure that they do not put in place, or continue, systems that might exclude marginalised individuals and groups, and those at risk of becoming marginalised. Further, service providers must work with local, municipal and, where appropriate, national governments to ensure that everyone is able to access safe water and adequate sanitation services, regardless of income levels. A good practice will ensure that priority is given to people having a basic level of access rather than improving service levels for those who already enjoy this level of access. Those who are living with a disability, or who are caregivers for those with a disability, and those who are living on precarious land or without settled land tenure must still have access to adequate water and sanitation services. Within the legal and regulatory frameworks created by the public authorities, service providers have the responsibility of discussing these needs with the affected individuals and communities, as well as with the relevant level of government, and ensuring that these needs are met, identifying and managing any specific barriers to achieving this.

Challenging issues in the context of equality and non-discrimination, such as formal restrictions in connecting households without land tenure, or the correct procedures in situations where households are unable to pay for services, are dealt with in Chapter 7.

3.4.2 Accountability

States are obliged to respect, protect and fulfil the rights to drinking water and sanitation, and should be held accountable for meeting these obligations to the people effectively under their governance. Accountability can take many forms, but will include monitoring, complaints mechanisms, dispute resolution and transparency. Service providers must ensure that their monitoring systems, including monitoring of water quality and risk of pollution, and of levels of affordability, comply with government standards and instructions received from public authorities. It is also in service providers' interests to ensure that there is an effective complaints procedure for the users of its services, such that the service provider is able to understand the adequacy of service provision, can identify measures to improve the service, and will foster good relations with its customers. Data and information should be publicly available on issues such as water quality, reliability of service and the pricing or tariff structure.

3.4.3 Sustainability

Water and sanitation services should be economically, environmentally and socially sustainable so that future generations can enjoy their human rights to safe drinking water and sanitation. Public authorities and service providers must look beyond the short-term goal of extending access to water and sanitation services and expand their customer-base, and must consider how resources are going to be ensured for operation and maintenance in the long-term. In the case of sanitation, it is important that they understand that sustainability and effectiveness of the service will also require consideration of good hygiene behaviour. This may require education and promotion of hygienic practices, including practices of water transport from a standpipe and household storage. Public authorities and service providers are responsible for ensuring that this is integral to their planning procedures; their responsibility does not end with the mere provision of a facility or service. It is useful for them—not only from a human rights perspective!—to consider relevant indicators that would serve as an early-warning for risks to long-term sustainability.

This will help avoid regression. These indicators would include financial, operational, institutional and social parameters, such as the following:

- whether there are sufficient resources to cover medium- and long-term operation and maintenance costs;
- whether a human resource base with adequate capacity to continuously maintain a system is secured (IWA 2014: finding 13, page 34);
- whether adequate systems exist for longer-term financing;
- whether the system is supported by a regulatory body to monitor water quality, continuity of service and other critical indicators; and
- whether the population using the service understands the service and what is required of them to keep it working—including a willingness to pay or to report defects such as leaking pipes.

3.4.4 Participatory processes

All actions that have an impact on people's access to water and sanitation services must provide meaningful opportunities for community engagement. Users, particularly those who are generally under-represented, including women, ethnic and racial minorities, and marginalised groups, must have an opportunity to participate meaningfully in decision-making as it relates to their access to safe water and sanitation. Public Authorities and service providers have the responsibility to ensure that the users of the service, and those affected by decisions made about the type of service, are kept informed and are able to participate in a meaningful way in this process of decision-making. This is as relevant at the level of the point source, or type of latrine, as it is for the prioritisation of where providers should extend their services to include new users or improve existing services.

Participatory processes can also be of relevance in connection with issues of affordability—the involvement of communities in the work needed to extend water and/or sanitation services can substitute monetary transactions, but care must be taken to properly assess the opportunity costs to community members and ensure their work is honestly valued against the services they receive.

From another perspective, participation implies the engagement of those managing formal or informal water and sanitation services or of those with responsibilities of a regulatory nature, with politicians, policymakers and others charged with giving shape to the national legal and policy frameworks for the HRWS. Such a dialogue will ensure that criteria and procedures contained in such frameworks are rooted in the reality on the ground, reflect exceptional situations of inequality and discrimination as captured from the day-to-day operations in service delivery and do not create expectations that cannot be fulfilled.

3.4.5 Access to information and transparency

Transparency and access to information are essential for participation to be meaningful. In the context of water and sanitation services, access to information can include information on water quality, water pricing and tariff structures, on the availability of subsidies for particular population groups and individuals, on systems for paying bills, as well as on macro-budgeting issues, such as existing and planned national/regional programmes and budgets for water and sanitation services.

Transparency in water and sanitation service delivery requires that insights are provided into the budgeting process, including budget monitoring, budget allocation and expenditure, and which areas or population groups are to be prioritised in service delivery. This is in line with the principle of progressive realisation, which requires States to be able to demonstrate and report on tangible progress in a planned

process, using maximum available resources, even as they themselves do not have to deliver the services but delegate them to public or private providers.

3.5 BASIC CONSIDERATIONS FOR OPERATIONALISING THE RIGHTS

3.5.1 Population make-up

The majority of the global population (close to 60%) benefit from water supply services that are organised by public authorities. A significantly smaller proportion benefits from public sanitation services. In many cases these water and sanitation services are delivered by public providers. In other cases, the delivery of services is delegated to private companies with clear operating instructions. In several countries services are independently regulated in accordance with agreed standards and norms. Where public services are available, individual water-users are unlikely to have alternative options that are cheaper. These services have a *de facto* (factual) if not a *de jure* (legal) monopoly. However, State obligations under the HRWS imply actions that may not be included in the traditional way of service delivery. These additional actions include, among others, ensuring an alternative service in case of major disruption, maintaining the water safety when a new contaminant emerges, identifying all those who do not benefit from the existing public service and ensuring satisfactory access, organising cross-subsidies or direct subsidies to those who are unable to fully pay for connections and services, and detecting and solving inequalities in access. In brief, delivering conventional water supply through public systems and operations is not sufficient to ensure that each individual enjoys access to water and sanitation in a way that satisfies the human rights requirements. Specific action by public authorities is required. The following are some illustrative examples.

- When water is supplied by private tanker trucks, the water-users can only rely on the safety of the water if its origin and the cleanliness of the tankers are controlled by public authorities.
- As wastewater networks are more expensive and technically-constrained than drinking water networks, in many urban areas (for example, Manila, the Philippines) piped water systems exist next to personal, on-site sanitation facilities such as septic tanks. In rural areas, on-site sanitation is common.
- The price charged to the individual user for water supplied by a formal water utility may differ significantly when it is delivered through a public standpipe from when it is delivered to the owner of an apartment building who then charges the individual tenants. Under such different circumstances, affordability must be verified and ensured; this is not necessarily a task for service providers, but rather for regulators with responsibilities for the proper application of housing and rental regulations.

Another large part of the global population, billions of individual water-users, must rely on the provision of water supply and sanitation services and facilities with no form of operational government involvement. In this informal context they share water resources with others, they buy water from informal service providers, their sanitation facilities are maintained by private contractors and there is no public technical support for whatever systems they may be using. Although in these cases public authorities do not directly deliver the service, as duty bearers for the HRWS their obligations remain the same and they are accountable for progressive realisation. This implies that, for this informal sector and for small community water supplies, they must verify that water and sanitation services are available and acceptable to all, that everybody benefits from satisfactory access to these services and facilities, that the quality of water delivered to users meets national standards, that the service provision chain does not result in unaffordable prices and, across all these criteria, that inequalities and discrimination in service delivery are eliminated. It also implies that, where situations or conditions are deemed unsatisfactory, public authorities need to enforce remedial or corrective action. As the cost-effectiveness of water treatment

Box 3.7 Regulator experiences from Zambia

In Zambia the regulator has allowed a 3% solidarity levy on the water tariff, the proceeds of which are to go towards the improvement of sanitation facilities and services in the peri-urban areas. The funds have been ring-fenced and the water utility can only use them to implement regulator-approved plans for improved sanitation in the designated areas. Significant amounts of money have been raised for this cause. The initiative faced a major challenge, though: the water utility lacked sufficient capacity to work on low-cost sanitation in peri-urban areas and this proved a major impediment. In the end, in response to an outbreak of cholera in one of the peri-urban areas, a portion of the funds generated was used to control the spread of the epidemic.

The regulator in Zambia also made an effort to involve consumers in monitoring the performance of service providers. It established water watch groups consisting of representatives from the general public, who were educated in understanding the service level agreement the water utilities had entered into with the regulator. The water watch groups were able to collect many unresolved complaints and facilitated a dialogue between the service providers and their customers to address the issues. As an immediate result quality of service and revenue collections (particularly in low-income areas) improved and corrupt water utility workers were exposed. Any issues that remained unresolved were reported to the regulator for enforcement.

Source: Osward Chandra (African Development Bank), personal communication.

and transport is optimised through collective actions that allow for economies of scale, generally public authorities will have no other option but to extend formal water delivery under the auspices of a regulatory body to all "unserved" people progressively or, alternatively, to integrate informal providers into a formal framework. An example from Zambia of creative regulator initiatives is presented in Box 3.7.

For completeness' sake, it is necessary to mention the third group of individuals who are in a position to benefit from drinking water supply and sanitation using their own private means without external service provision. This refers to people living in remote or isolated areas who have their own water sources and on-site sanitation facilities. Depending on location, their numbers may vary significantly. In some parts of the world (Western Europe) this group may be relatively small, in other parts (rural Asia, the Americas) it may be substantial in size. For this group the obligations of the public authorities, and the associated expenditures, should focus on ensuring that individuals are protected from poor service conditions: drinking water quality must be checked regularly to ensure it complies with national standards, the individual facilities must be checked not to infringe on the rights of others or negatively affect the environment and, when public services are shown to be cheaper, they must consider substituting the private supplies and facilities through some kind of technical support.

3.5.2 Organising effective interactions between rights-holders, operators and authorities

Many practical details need to be sorted out before the process of realisation of the HRWS becomes operational. The elimination of inequalities between different users, and of discrimination and exclusion are the biggest challenges. Some practical examples of operational details at the level of individual water-users that need to be clarified are listed below. They will be revisited in the next chapters.

- Is a household obliged to connect to an existing network if it benefits from a satisfactory alternative option; should it contribute to the cost of this network even without using it?

- Is it compulsory to have a metered connection before receiving drinking water piped into the home?
- Through what mechanism should individuals be informed in case of water safety incidents (contamination or service disruption)?
- How should individuals who use a public standpipe be informed of the regulated price of water?
- What procedure should be followed in case of non-payment of water or sewage bills, and is there a reliable method to distinguish between users who are unwilling to pay and those who are unable to pay?
- What should be allowed as the maximum time between a request for an individual connection and the connection and supply becoming operational?
- How can a judicious and just use of subsidies be stimulated?
- How should users file a complaint, and what should be the follow-up procedures?

These operational details are usually described in standard contractual documents that are given to water-users by the responsible water authority or the operator to whom service delivery has been delegated. The process of standardising these documents will need to apply a human rights lens. It must be ensured that contracts comply with the human rights criteria and principles, and that salient issues, such as effective complaint mechanisms, are effectively addressed.

3.5.3 Practical aspects of rights and responsibilities

For the pursuit of progressive realisation to become truly operational, both individual and institutional responsibilities need to be recognised.

Individual responsibilities include abstaining from actions that prevent others (individuals or communities) from enjoying their rights, contributing to the cost of the service according to capacity to pay and, on a voluntary basis, reporting on conditions that are in conflict with the extension of the rights or lead to wastage of the services.

Institutional responsibilities of the implementing entities (national authorities, local authorities and service operators) imply that they have a legal basis allowing them to perform their duties—for example, the right not to be prevented from supplying water to informal settlements. Progressive realisation also implies, however, that authorities demonstrably maximise the resources allocated to achieve human rights objectives. To ensure that essential functions of providers (public authorities and operators of whatever nature) and regulators can be performed properly, effectively, sustainably and equitably, utilities have to substantiate the arguments for limitations to their operations, imposed, for example, by resource constraints.

The success of operationalising the rights depends on the careful identification, allocation and separation of the roles of all parties. Public authorities responsible for drinking water supply are not necessarily the same as those responsible for ensuring affordability of the service. In Chile, for example, ensuring affordability comes under the responsibility of the Ministry of Social Affairs and is managed through a system of subsidies. It is therefore strongly suggested that, in addition to defining roles and allocating responsibilities, it is necessary to define the conditions under which each party will be able to perform the functions it has been charged with and the means for their implementation. These need to be accompanied by corrective mechanisms in case the conditions are not conducive to optimal performance. It should also be recognised that the duties implied by the responsibilities transfer a certain number of risks to the party. For operators dedicated to operationalising the HRWS, such risks include abuse by customers, corruption and poor governance; some examples are given in Box 3.8.

Taken to extremes, many of the examples of abuse and incompetence will lead to a serious degradation of the water sources and of the infrastructure, and to a decline in the quality of service delivery.

Box 3.8 Examples of problems encountered by operators that need to be addressed in order to realise the HRWS

- A user capable of paying refuses to do so or bribes an agent of the service operator in order to pay a reduced price. This places an extra burden of cost incurred to all users and/or prevents the water operator from having the resources necessary to properly maintain the public water system.
- Unmetered, connected users waste water or do not repair leaks in private networks thus compromising water availability for others.
- Household meters are damaged or by-passed by water-users who want to avoid contributing to the cost of public water supply services.
- Faced with intermittent service, users try to improve their access to water by connecting an electric pump to the network to get more water. This causes negative pressure in the network leading to infiltration by potentially polluted groundwater affecting the quality of water for all users.
- A subsidy system in place to support poor households in paying their water bills is used improperly or even abused by well-off households.
- National or local government institutions refuse to pay the bills for the provision of water to, for example, ministries, the town hall, or to schools or parks, thus adding an extra burden on all other users and seriously compromising cost recovery and sustainability.
- The local authority is eligible for a state grant for capital works, but because the government in power has changed, this payment is withheld and the necessary investments are not realised.
- The operator has started an expensive new infrastructure project in accordance with the contract programme but the public authority refuses to pay the agreed instalments.
- Liquid or solid waste is dumped by individuals or entities in places where it endangers the quality of drinking water sources.
- Individuals pump water from private wells and discharge it after use into public sewerage networks without contributing to the cost of this public infrastructure.
- Individuals or entities pump significant volumes of water from underground aquifers without the necessary authorisations, thus jeopardising the water resources of other users or causing the intrusion of external contaminants (like seawater) into the aquifer.

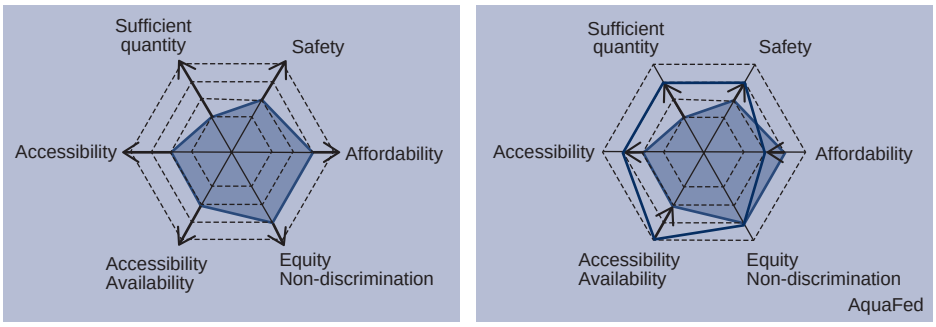
Source: Gérard Payen, personal communication.

3.5.4 Monitoring progress

There is no single index to measure progress against all the various criteria and elements of the HRWS. There are several indicators that can vary independently. For example, access to unserved areas can be extended without improving water quality or vice versa.

Progressive realisation is a task of multiple dimensions. It must address progress for each criterion and principle of HRWS. Therefore, monitoring progress requires the use of a series of indicators, at least one per HRWS criterion.

Figure 3.1 illustrates the specificities of monitoring progress of the human right to safe drinking water in a theoretical example. This example assumes an investment programme that aims to upgrade and expand an existing system. Water rates are increased to fund the investment. The infrastructure is improved and expanded effectively. However, in the absence of a pro-poor mechanism, the average affordability of water supply services has decreased.



Initial situation (in green): progress is needed on all criteria

End of programme (in blue): progress was made on four criteria—one has regressed

Figure 3.1 Example: monitoring progress resulting from an investment programme that aimed at upgrading and expanding an existing water system.
Source: Aquafed 2015.

Details of monitoring activities to be undertaken by operators and regulators will be addressed in Chapter 6.