

Affordability in the provision of water and sanitation services: Evolving strategies and imperatives to realise human rights¹

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Abstract

Affordability in access to drinking water and sanitation services (WSS) is an essential component for the realisation of the human rights to water and sanitation (HRtWS). The Sustainable Development Goals aim to provide adequate WSS to the remaining billions of people still left behind and explicitly recognise that water must be affordable to users in the variety of their particular conditions and needs. As one of the normative content under the human rights framework, affordability can be integrated into the broader principle of providing social equity and sustainable services to all people. Accessing WSS implies managing a wide range of costs—not all of them financial—that can differ in any given State or region. Indeed, difficulties are common in providing WSS in a way that reconciles affordability and economical sustainability, which generates tension in service provision. A particularly problematic aspect concerns applying mechanisms that successfully attain all people in society who require help while not offering undeserved assistance to people with comparatively lesser needs. In sum, affordability is attained through various efforts: a coordinated institutional structure, clear legal provisions (i.e. formally recognizing the HRtWS), contextually specific policy and plans, accountable regulatory mechanisms and efficiently organised service providers.

Keywords: affordability; water; sanitation; human rights; sustainability

1. Introduction

The affordability of drinking water and sanitation services (WSS) is essential for the realisation of the human rights to water and sanitation (HRtWS). As evidenced in its recognition as one of the criteria that define the normative content of the HRtWS (UNCESCR,

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2003), it is undoubtedly nonsensical to affirm that people have access to these services when they are actually unable to afford them and have to compromise their enjoyment of other human rights to do so (e.g. to food, housing, health, education). Despite this, clear affordability standards are non-existent in many countries and regions to the detriment of those most disadvantaged people that receive WSS either formally or informally.

Monitoring practices usually assume that people have access to WSS without considering if they can afford them. In the context of the challenges imposed by the United Nations 2030 Sustainable Development Agenda – and the corresponding Sustainable Development Goals (SDGs) – it is recognised that, in addition to accomplishing universal access to WSS, these services must also be affordable to users in the variety of their particular conditions and needs.² Given the complexity of determining what really constitutes affordable services, this necessarily requires several meticulously chosen criteria that take account of the diverse conditions in which people use and access WSS.

The human rights framework designates States as duty-bearers that must ensure an affordable access to water and sanitation services to all. This can be a source of contention for certain scholars, policymakers and service providers for whom maintaining economic sustainability of WSS provision can appear incompatible with the concurrent objective of achieving social sustainability, meaning a scenario characterised by equal access to quality, affordable WSS. Often, for these parties, the provision of sustainable WSS necessarily depends on full cost recovery via payments from users. When taken as the guiding principle that structures the provision of WSS – which it too often has been in many situations worldwide – this economically driven preoccupation has historically resulted in the exclusion of significant groups of people from these essential services. Strong evidence of this is found in the fact that rural inhabitants around the world systemically suffer from worse conditions of access to appropriate WSS as compared to urban dwellers. Moreover, as recent times have demonstrated, austerity measures applied in times of economic and financial crises can result in creating additional burdens for many users (see European Parliament, 2015a & 2015b); when tariffs are introduced or raised concurrently with rising unemployment and social spending reductions, WSS can become increasingly unaffordable for many people. For instance, developments in Ireland have illustrated such challenges where, amidst wide resistance from struggling users, water metering and fees for household use of the public water supply replaced the previously free water services (Power, Haynes & Devereux, 2016).

Indeed, accessing WSS implies managing a wide range of costs—not all of them financial—depending on a variety of socio-technical conditions that are present in a given State, region or community.³ The human rights framework does not prescribe concrete measures for how States must provide these services, but it does clearly outline several fundamental characteristics of these human rights that must be available to all people (see UNCESCR, 2003; UNHRC, 2009). Alas, in the interests of ensuring environmental responsibility and maintaining systems' financial viability, it may be inappropriate to advance that water and sanitation should be available free of charge. However, it is equally inappropriate to assert that all people should have to pay for access. The usual fees paid by

many users may be too high for people living in vulnerable conditions, considering their increased difficulty in ensuring access to these and many other essential services that also constitute human rights. Moreover, many marginalised people, especially in developing countries, do not even have formal access to WSS (e.g. through a utility), which can imply an even greater economic burden for them in comparison to those who do, for example, have connections to collective systems. For this reason, it is important that States not only devise plans to make formal services more affordable for all users, in accordance with their particular socio-economic situations, but that they also take into account the additional need to expand appropriate services to reach all people in need.

This article attempts to discuss the growing framework around the provision of affordable WSS and the existing strategies and experiences of countries and cities around the world. Understanding these services as fundamental human rights, it attempts to shed light on the ways in which WSS service provision can reconcile affordability with economic and environmental sustainability, not to mention with the concurrent realisation of other interrelated human rights. The very concept of affordability is discussed first against the backdrop of the human rights framework. Subsequently, various mechanisms that aid in ensuring affordability (legal, regulatory, economic) with their respective advantages and gaps are considered before tackling the challenge of targeting the people and groups that are most in need of improved WSS. The grassroots, behavioural approach embodied in the Community Level Total Sanitation (CLTS) movement is reviewed as an original, affordable method of empowering communities to improve their own WSS. Finally, the challenges of monitoring affordability on a local and global scale are discussed before presenting final considerations.

2. What is affordability? Considerations from the human rights perspective

Even before the human right to water and sanitation received an authoritative definition from international human rights bodies (see UNCESCR, 2003; UNHRC, 2010a), the affordability of WSS had long been recognised as an aspect of fundamental importance. In 1992, at the International Conference on Water and the Environment (also known as the Dublin Conference), Principle 4 of the final statement affirmed that “it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price” (UNCED, 1992). Of course, the Dublin Principles have had controversial impacts, not least since the main statement within this very same Principle designated water as an economic good and the concept of affordability, although mentioned, was not established in further detail. Indeed, scholars have suggested that the Dublin Principles were adopted by major multilateral financial institutions (e.g. World Bank) in line with a broader strategy in which privatisation and decentralisation became central elements of their water agenda (see Bakker, 2014). Given the existence of many cases, worldwide, in which privatised services made services so expensive that low-income users were essentially excluded from access to WSS (which, moreover, did not necessarily improve in quality), a certain stigma

has rubbed off on the Dublin Principles and made them unsavoury to many stakeholders in the water and sanitation sectors, notably human rights defenders.

Later on in the 1990s, in the design phase of the Millennium Development Goals, it was proposed that affordability be formally included as an aspect of the target (MDG 7) related to WSS. Recently, it succeeded in becoming a determining characteristic of the Sustainable Development Goals' target 6.1. Moreover, many countries have legal provisions that specifically address the affordability of WSS. In Namibia, the Water Resources Management Act requires ensuring "that all Namibians are provided with an affordable and a reliable water supply that is adequate for basic human needs" (Namibia, 2004).

The difficulty lies in establishing appropriate standards that reach all people and encompass the variety of costs that come with providing their particular conditions of access to WSS. For users, the costs associated with water and sanitation can be classified roughly into direct costs (e.g. paying a bill, building and maintaining installations) and indirect ones (e.g. time spent, health-related effects⁴). Under the human rights framework, many indirect costs are associated with the criteria of service accessibility (de Albuquerque, 2014). Yet several countries formulate affordability provisions merely in relation to the percentage of a household's income that is spent on accessing these services. For example, in Indonesia a regulation exists stating that the drinking water "[t]ariff shall meet the principle of affordability [. . .] if domestic expense on the fulfilment of the standard of basic need for drinking water does not exceed 4% (four per cent) of the income of subscribers" (WASH United et al., 2012, p. 237). Similarly, a Lithuanian law concerning financial assistance for low-income families can entitle them to compensation if their expenses for cold water and sewage exceed 2% of the family income or if the cost of hot water and sewage exceeds 5% (ibid, p. 266).

Although these are relevant policies of a type that many countries are still lacking, it is important to point out that, alone, they can be simplistic and insufficient. Firstly, it is not a straight-forward process to assess a household's income, especially in regions where there are significant informal economies. Secondly, for some households, spending even 2% of their total income on WSS can represent a direct risk to other human rights of the individuals affected. Thirdly, the costs encompassed in such policies are unilaterally economic. Thus, they neglect the all-too-important time-based dimension that weighs on millions of people who spend hours to access services, as well as the health effects related to precarious access to WSS.

Indeed, it appears too difficult for any general international standard of affordability that merely considers users' income to fairly reflect the socio-technical contexts in which all people live and the diverse challenges that they face in practice. Instead, a more compatible standard from the perspective of the human rights framework would be one that takes into account the interaction between all the normative content of these human rights and does not compromise the enjoyment of other human rights. Of course, to apply this more adequate definition implies knowing the costs incurred by users for housing, food, health and other rights.

Thus, current international development objectives and the United Nations' evolving human rights framework set out obligations for governments and service providers to elaborate

specific measures that guarantee affordability. These measures must apply to the ways in which users currently access WSS and with the ways in which they are intended to access improved WSS in the future. This means that in places where networked water services are not available to all residents, relevant authorities must assess the costs incurred by users not served by a centralised system; for example, where desperate users opt to regularly pay high prices to private vendors to obtain their water, or pay high time-based costs to fetch water, which impedes on other human rights of theirs. This implies that a given country or region's authorities would have to perform comprehensive assessments of all services being used to obtain a more enlightened understanding of their users' economic needs and their conditions of access to these essential services. With such information, authorities will be in a better place to understand the specific aspects that must be taken into account to make all services – present and future – available, accessible and affordable for users. Otherwise, if the measures applied by a State to ensure affordability consist merely in adjusting tariffs charged for service through the formal utility, too often these measures will only perpetuate the inequalities that are suffered by people without a formal connection to the network.

3. Mapping interaction between affordability and environmental and economic sustainability

It is a thought-provoking exercise to compare and contrast the diverse ways in which other social, economic and cultural rights are typically financed worldwide. For health care systems, some countries rely on public funding while others rely on individual contributions. This variance between countries is very associated with the way in which a given country historically envisaged the implementation of the welfare state. Obtaining food, in large part, relies on individuals' own efforts; States are obliged through the human rights framework to provide assistance to individuals in need. Education until a certain minimum level is most often paid for with public funds depending on the country. In this regard, the International Covenant on Economic, Social and Cultural Rights overtly requires States to provide free primary education for all and to progressively introduce free education for secondary and higher education.

The ways in which WSS interact with diverse, essential aspects of human societies make it difficult to determine one best way in which these services should be administered from a financial perspective. In order to realise the human rights to water and sanitation, various types of financing are often necessary. Providing free water services necessarily implies financing them via broader State levies. Moreover, it is often considered to lead to greater waste than when users have to make dedicated payments for water usage (Savenije & van der Zaag, 2002; Rogers, De Silva & Bhatia, 2002). Indeed, charging users for their use of water and sanitation services can be seen as a demand management strategy, a measure that may respond not only to economic priorities but also to environmental ones. However, the close relationship between public health and access to water and sanitation provides incentive to make these services available to users at an affordable cost; if services are financially inaccessible for users, the alternatives that they seek may likely expose themselves

and others to greater health risks. This is particularly so for sanitation, as one individual's right to sanitation interacts directly with other people's human right to health as well as with environmental protection priorities (see UNHRC, 2009; UNGA, 2013). For example, in the case of Lagos, it is estimated that a mere 10% of the megacity's population receives water through the public network. Users thus rely on informal or individual solutions to obtain water. This has serious effects not only on affordability for users—many of whom must resort to buying from individual vendors at high prices—but also on the environment, as the widespread practice of digging boreholes is accelerating processes of seawater intrusion (Jideonwo, 2014).

Any pricing applied to WSS – be it for centralised piped water and sewerage systems, in other urban settings where water may be provided via standpipes, and where sewage disposal is performed via individual solutions – should ideally serve the triple function of:

- providing the maximum possible benefit to all users in accessing safe, quality WSS;
- recovering funds necessary to cover the multiple costs involved in administering WSS; and,
- ensuring environmental protection.

These priorities are in line with the three pillars of sustainable development as formulated in the UN's Agenda 21. A hallmark concept of the late 20th century, sustainable development is commonly conceptualised as the convergence of social equity, economic development, and environmental protection.

The protection of nature is of quintessential importance to ensure a safe environment and a perennial supply of quality drinking water to users. States have increasingly recognised that mitigating environmental degradation contributes to increased human wellbeing. From the 1960s to the present, “[v]irtually every State in the world has enacted domestic laws aimed at reducing air and water pollution, regulating toxic substances and conserving natural resources, among other goals” (UNHRC, 2012, para. 8). Indeed, States have recognised the central role of water in protecting the environment in various regional or international legal instruments, such as the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses. Within States, regular practices that reflect concerns for environmental protection include controlling common sources of pollution (e.g. agriculture, industry), monitoring extraction levels to ensure that aquifer recharge levels are not surpassed, and suspending certain non-essential high-consumption practices in times of drought, such as filling swimming pools or washing cars. The improper disposal and collection of human waste is also a serious environmental and public health problem in many countries, posing serious “risks and dangers” to ensuring nutritious foods and clean drinking water, according to the United Nations Convention on the rights of the Child (UNCRC, 1989, art. 24).

Among the ideal functions of pricing WSS service provision mentioned above, significant contention exists at the crossroads between ensuring economic sustainability and social equity. One reason for that involves the definition of economic sustainability itself. Economic sustainability in this sector may be considered a model of service provision that

recovers the supply costs of delivering WSS, which for some can merely consist of the costs of operation and maintenance, or may also include the added costs of initial capital investment and systems expansion (UNHRC, 2010b; UNHRC, 2013). Other schools of thought attribute significant importance to additional elements, such as opportunity costs, economic externalities and environmental externalities, in their definition of economically sustainable WSS and *full* cost recovery (Rogers, Bhatia & Huber, 1998; Rogers, De Silva & Bhatia, 2002).

The human rights framework clearly identifies affordability (or “social equity”) and economic sustainability as two crucial aspects of service provision that require reconciliation. The human rights approach would argue that a lack of economic sustainability is a road to making services regress, which would likely burden the poorest (UNHRC, 2013, para. 30). But which definition of economic sustainability should one take as a reference? While this has not been the subject of extensive clarification, relevant UN entities have underscored that, as a priority, cost recovery based on tariff collection must not become a barrier to access to safe water by poor people (UN, 2002). Proponents of full cost recovery (Rogers, De Silva & Bhatia, 2002) also agree that careful arrangements must be made at the policy level between cost recovery’s benefits (i.e. maintaining and expanding service provision) and risks (i.e. charging unfair amounts to poor users for essential levels of access to WSS). Certainly, if policy or decision makers give priority to recovering full economic costs and do not have the necessary mechanisms to provide a safety net for low-income families and other vulnerable groups, this may be a possible scenario in which economic sustainability concerns create problems for the HRtWS.

Provision of WSS implies a plurality of costs. Direct costs relate to building, operating and maintaining WSS for all people (UNHRC, 2015a; Rogers, Bhatia & Huber, 1998). In terms of indirect costs, several externalities and practices including corruption – which is unfortunately common in the water sector – deserve mentioning (UNDP, 2006; Transparency International, 2008; Davis, 2004). Corruption may lead to the inflated pricing of even formal services and lack of transparency in tendering and other essential decisions. Extortion may also be common to execute repair work and service connection or reconnection. These costs affect the poor and disadvantaged in society most, as they lack the power to oppose the vested interests of elites and the resources required to pay bribes (Transparency International, 2008).

Poorly managed service provision can also incur significant costs, such as decreased efficiency due to complicated organisational structures or postponed maintenance and refurbishment that can lead to potentially greater costs in the future (UNHRC, 2014a). Moreover, when service provision is guided by the overall objective of making profits for the provider or shareholders (either publicly or privately owned), users may suffer from higher costs, especially when the provider is oriented towards profit maximisation.

Considering the potentially perverse nature of many costs in the WSS sector, which have direct consequences on the user base, it is difficult (if not misguided) to assert that social equity exists in these systems while simultaneously expecting that users bear the full responsibility of paying to recover all costs of their WSS. Thus, in accordance with

UN treaty-derived obligations, States must ensure their WSS – be they provided directly or through delegated models – deploy solutions on a variety of fronts to reconcile the objectives of offering socially equitable and financially viable services.

4. Mechanisms to reconcile affordability and economic sustainability

4.1. Legal and regulatory mechanisms

To establish fair standards and guard against poor or corrupt governance, States, regulatory bodies and service providers must necessarily coordinate in their efforts. A robust legal structure that includes human rights obligations and anti-corruption measures are recommended in order to strengthen transparency and accountability in the water and sanitation sectors (Transparency International, 2008). The International Water Association Lisbon Charter indicates the need for strong regulatory systems that “supervise tariff schemes to ensure they are fair, sustainable and fit for purpose; promoting efficiency and affordability” (IWA, 2015, art. 4.2). Ideally, regulators must make sure that tariff schemes are producing the desired impacts vis-à-vis affordability for users. Regulators can also participate with other relevant government authorities to assess public expenditure on WSS. Naming but a few examples, it is valuable and fair to users for the regulator or service provider to provide a complaint mechanism through which they can make their voices heard. In this context, the Phnom Penh Water Supply Authority has been recognised for addressing corrupt practices as a way of increasing access to water and sanitation for the poor. Specific measures were instituted such as focussed training and performance-related pay for employees, the establishment of public offices where customers can pay their bills directly rather than going through bill collectors, and the introduction of meters for all connections (Transparency International, 2008).

Considering the very relevant role that regulators could have in ensuring that WSS are provided with respect for affordability, a significant gap continues to exist in establishing rights-based regulators. A transformation in the logic of regulators in this direction could do more than just contribute to more effectively reconciling concerns for affordability and economic sustainability: it could ensure compliance with the other principles that underlie the human rights to water and sanitation. In turn, this could trigger a paradigm shift away from the typically technically- and economically-focused regulator.

Regulatory measures are often more efficient in contexts where formal service provision is the norm, as opposed to non-formal providers such as private water vendors. Indeed, the portions of populations that are unserved (or under-served) by State-supervised providers often live outside the network systems that are the standard in many of the world’s most developed countries. In the various other settings (e.g. in many urban zones, slums, other informal settlements, and broadly across rural areas) WSS may be obtained from non-official, small-scale service providers that are not under State supervision or control (UNGA, 2015). These may be water vendors who sell at kiosks, door-to-door, or deliver via water tankers. People’s sanitation needs may be met through shared or community-level toilets or via rudimentary sewage networks that merely transport waste away without treatment. Not to

forget the millions of people whose “solutions” consist in rudimentary pit latrines that are seldom emptied and often overflow, as well as the practice of open defecation, which is still common in several developing countries.

Some countries are demonstrating interesting initiatives to “formalise” the informal, often small-scale, sector by bringing vendors under government supervision. For example, in Nairobi (Kenya) water kiosks in informal settlements are supplied by and registered with the utility, applying tariffs that are fixed by the regulatory body. However, it has been observed that vendors sell at higher prices than those officially established (de Albuquerque, 2014a). Alternatively, where governments and service providers are still unable to provide WSS to people that rely on informal service provision, governments may choose to provide some support to informal service providers in order to guarantee that users receive quality, affordable services (de Albuquerque, 2014b). Bearing in mind that this must be the State’s priority, and in spite of the potentially greater costs that may be incurred on the service provider, the transition from informal to formal service provision must not entail the unaffordability of services for users, otherwise it would constitute a retrogressive measure from the point of view of human rights realisation. Pending more inclusive policies from public authorities, good examples of how to direct aid to these populations can be drawn from experiences in African and Asian cities, where slum/shack dweller federations seek to develop city-wide sanitation provision in situations where households can only afford \$3-4 per month. They explore flexible options for low-income households, such as loan financing, as well as the crucial role of engaging with local authorities from the outset (Banana et al., 2015).

4.2 *Economic mechanisms*

For areas under State supervision, there are a variety of pricing models with the potential to reconcile affordability with environmental and economic sustainability. This usually translates to one of several models of tariff schemes paid for by users. Although the application of tariffs is mostly relevant only to those who are connected to a network, it is important to discuss their potential advantages and limitations given growing urbanisation worldwide and the corresponding growth in demand for citywide network systems.

Flat rates for service are mostly used where meters are not installed, given the difficulty in establishing a fee per volume of water delivered or sewage collected. In general, such broad measures risk being too simplistic and potentially overcharging or undercharging great portions of the user base. If applied in differential rates based on geographic location, socioeconomic status or property size and value, this mechanism could provide greater justice to some disadvantaged or marginalised people (targeting measures and their challenges are discussed further on).

A uniform tariff mechanism is one in which a household possesses a meter and is charged a fixed rate per volumetric unit consumed. Similarly to flat rates, this broadly sweeping mechanism is also susceptible to overlooking each household’s particular needs, where a variety of conditions may influence people’s needs for water (e.g. a person who

needs to perform dialysis or other health-related requirements, a family with many small children). In such a configuration, wealthier households will invariably be placed at a benefit by either paying less than poorer users or by accessing more water.

Differential pricing is a mechanism with the potential to curb such inequalities by attempting to offer lower tariffs to poorer households or communities. A common model is that of increasing block tariffs (IBT): the tariff paid by a user depends on the volume of water/sewage consumed/produced, and the predetermined range (or “block”) within which this volume is situated. As one’s total monthly consumption increases from one block to the next, the rate paid by the user will be gradually more expensive. The first block is often designed with the intention of supplying an average sized household with a minimum essential amount of water at the lowest feasible rate, generally at a rate that produces fewer returns than those needed for supply cost recovery. In principle, the higher rates incurred in the subsequent blocks reflect a concern for equity; a greater quantity of water consumed should signify that more water was used than what was needed to meet the users’ basic, personal needs.

Differential tariff systems raise a few important concerns though. Firstly, in the case of IBT, it is important that service providers set the blocks carefully. If the first block is too small, or the tariff too high, poor families will not be able to afford the basic quantities of water they need. And if the first block is too vast, or the tariff too low, it may make services unnecessarily inexpensive for people with relatively favourable socio-economic conditions, thereby threatening the systems’ overall financial sustainability. Secondly, and more importantly, many differential tariff systems including IBT may possess the critical methodological weakness of focusing on households and not the users that inhabit them. Thus, they disregard users’ differential needs and certainly do not appreciate households where non-residents share and depend on that household’s water and/or sanitation services. Consequently, the consumption of water or production of sewage can be much greater in such households, incurring greater costs in spite of the genuinely greater need (UNHRC, 2014b). In connection with this, it is important to take into consideration that in many countries, poor households commonly have more people living in it. In response to this reality, a possible scheme is for municipalities and providers to guarantee specific tariffs for people living in large households, as occurs in Portugal (Portugal, 2009) and Los Angeles (United States) (Hoque & Wichelns, 2013). Or instead, bearing in mind the risk that this could represent for the system’s financial sustainability, State governments may opt to provide the first block of service free of charge, as is practiced in South Africa, some Colombian cities and in Delhi (India).

Cross-subsidisation is a mechanism whereby, classically, different types of users – industrial, public, commercial, or wealthier residential users – pay different tariffs (ideally, more than the average price paid by households) in order to support less wealthy residential users. The rationale behind the establishment of these tariffs differs from one country or region to another, however. Indeed, aims to generate greater revenue in some cases can lead to tariff schemes where, for example, large users, especially industries, are actually offered decreasing block tariffs (a less expensive volumetric rate for greater consumption). A possible justification for such policies could be that although they pay lower rates with

higher consumption, the incentive measure nevertheless leads to greater consumption and greater revenue for the service provider with which to make lower fees possible for other users. In many situations (e.g. where water resources are limited or must be closely controlled due to the increasing preoccupations triggered by such events as climate change), such policies risk aggravating environmental sustainability concerns (Rogers, De Silva & Bhatia, 2002). Moreover, when these policies coexist with situations of inadequate access to quality WSS for all people's personal and domestic needs, this clearly contradicts the principle of social equity. Yet, even when a cross-subsidisation scheme prioritises more equitable principles – wealthier users and commercial or industrial users pay higher tariffs to assist society's more disadvantaged or marginalised – some concerns still remain.

In many places (e.g. many developing countries) where the existing wealth is insufficient to cover all costs through tariffs, additional funds are required to supplement revenue from this source. Given the previously mentioned interest in protecting public health via investment in WSS, governments often recur to supplementing service providers with public funds (Hall, 2001). Even some traditional supporters of private provision of WSS have recognised the inability of ensuring economic sustainability through tariff collection alone (World Bank, 2014). Indeed, through broader tax revenues, States can be well placed to cover many costs. Mainly, these include the costs of constructing water supply and sewerage systems as well as parts of operation and maintenance. Taxes may also be used to assist in other services that can potentially be cost-prohibitive for users, such as emptying pit latrines (Norman, Fonseca, & Trémolet, 2015). Even when revenue originating from tariffs is supplemented by tax levies, balancing economic sustainability and affordability is still a key issue; while the former is usually the driver for such revenue combinations, it does not necessarily ensure fair redistributive mechanisms or a guarantee that access to WSS is affordable for the worst-off.

Notable developments are occurring in some countries, such as Ireland, with respect to government subsidies for WSS. In that country, until recently, WSS were provided without charging tariffs to users but instead through public funds. In 2014, this was set to change to a more conventional system of user tariffs. But in 2016 a new government ordered the creation of an Expert Commission on the funding of domestic public water services. The commission's conclusions and recommendations dialogue with human rights obligations, ultimately advocating for an allowance of an essential level of WSS to users paid through State taxation. The commission also supports the expansion of metered WSS in order to pass on excess charges to users, and the consideration of household size (number of inhabitants) and special conditions that may justify greater needs for some users (ECDPWS, 2016). In all subsidy-oriented systems, especially in cases so wide-reaching as the Irish case, concerns persist as to whose taxes are providing benefits for which people. This will be discussed further in the following section.

Finally, it is important to point out a few other economically driven mechanisms that are commonly employed in the interest of securing revenues, but which may actually exclude some users with insufficient income. Firstly, connection charges to a networked system can be too cost-prohibitive for some people and may constitute a considerable barrier to their

gaining access to quality WSS. Some countries have started to remove these charges and incorporate them into standard service fees, making existing users assist in financing the costs of extending services to unserved areas.

Secondly, pre-paid water meters, which allow users to consume only what they have previously paid for, have been suggested as a strategy to ensure that service providers will not lose funds from users that do not pay their bills. When this type of mechanism is not accompanied by additional measures to guarantee minimum essential quantities of water to users, they may translate into many people's "silent disconnection" from water services (Coalition Against Water Privatisation, 2004). Indeed, disconnecting users due to an inability to pay for services has been identified by United Nations Special Rapporteurs on the human rights to water and sanitation time and again as a human rights violation. This was illustrated on multiple occasions in recent years, such as when several Rapporteurs (representing water and sanitation, adequate housing and extreme poverty) decried the massive disconnection of tens of thousands of users from the public water network in major United States cities, Detroit and Baltimore (OHCHR, 2014; OHCHR, 2015). Some countries, such as France (2013) and England (1999), pay tribute to some criteria of the human rights to water and sanitation via legal provisions that protect residential users from having their supply to water disconnected for non-payment.

5. The challenges of targeting those most in need

There are very real challenges involved in targeting the world's most needy people. Many of these people are not only unserved by official water and sanitation services, but may also be relatively "off the grid" vis-à-vis State services in many respects. Indeed, despite the existence of certain benefits or programs, it may pose significant difficulty to a State or service provider to simply spread awareness of said benefits to the targeted audience. Moreover, in many cases such benefits are laden with bureaucratic procedures that demand documentation from low-income or marginalised people that they may not possess, or disqualify some recipients with exclusionary eligibility criteria, such as that users must possess secure land tenure. Other important social difficulties can also obstruct the process of spreading benefits to people in need, such as when the receipt of external aid is liable to produce stigma in a certain culture or group of people.

As mentioned previously, mechanisms that apply to formal network provision can be susceptible to inflating inequalities. For instance, cross-subsidies between water and sanitation services can be unfair to some needy users that only receive water services in their households, as they are effectively subsidizing wealthier people or households that do have a sewer connection. In many countries, subsidies for water are favourable to commercial or industrial users, whose requirement for water is incomparable with the needs of individuals and families for water in their household (UNHRC, 2016). Furthermore, the commonly applied increasing block tariff structure is unfavourable to large families or multiple households who share one water connection, as their greater consumption is a reflection of their greater need and, for that reason, does not deserve penalisation.

Moreover, governments planning to supplement the water and sanitation sectors with tax revenues must be careful not to help some users at the detriment of others. Direct subsidies and “hidden” subsidies may benefit people that are not necessarily the most in need. Examples of direct subsidies are tax breaks or financial incentives for constructing a toilet, while “hidden” subsidies are those that improve infrastructure or services that will only be used by certain—often more privileged—groups of users. If, in any given city or region, the local authorities’ aim is to connect all of its users to a central piped water or sewage network, it will at least be sure that public investment in the construction and maintenance of this network will not leave out any users in need in the long term (Wankhade, 2015). However, many individuals that do not require help will also benefit from such broad investments in public network infrastructure. The notion of social equity is undeniably sacrificed in such a scenario where, for instance, the taxes of a typical dweller of a rural area, whose family may rely on well water and a pit latrine, are used to expand a piped sewerage network to developed urban neighbourhoods.

In light of these observations, it appears fundamental that the target audiences be identified from the outset and involved in the very design of benefit programs. Indeed, free, active and meaningful participation, access to information and transparency are universal human rights that, beyond providing justice, also demonstrate concrete benefits in the context of this discussion. Some policies have used participatory wealth rankings as a way of assessing poverty and determining how to target local development measures. Determining relative poverty in a given community provides detailed insights on local poverty, often including access to water as an indicator in the analysis, which allows targeting to be done on a more nuanced scale (see Hargreaves et al., 2007). Moreover, participatory budgeting is increasingly common in municipalities across the world. By enabling residents to have their say in the budgeting priorities of their local government, such processes have often contributed to improving many basic services including water and sanitation (Cabannes, 2014). For example, Thailand’s government had great success in expanding access to sanitation in the late 1990s when it provided sustained subsidies through revolving funds, in addition to funding for specific activities, to villages who received the flexibility to allocate the funds as they saw fit to those most in need (WaterAid, 2013).

Indeed, research indicates that a combination of mechanisms may be necessary to reach all those in need, suggesting the demand for robust institutions capable of coordinating multiple programs. It can be difficult to broadly assess a given population’s socio-economic conditions, especially in places where this data is not readily available and where a large informal economy exists. Thus, viable alternatives include assessing an individual or household’s conditions of safe and affordable access to WSS by considering indicators like the type of access (e.g. if a small-scale water supply or sewage facility is used), the size or property value of a user’s place of residence, or their geographical location (e.g. in an area recognised as possessing many poor residents) (Loftus, 2004; Vargas & Heller, 2016). Of course, although it is easier to administer such means, these indicators do not offer the possibility of clearly differentiating between those who live in extreme poverty—and cannot afford to pay anything for service—and those who could pay a minimal sum. In one

case study, a comparison of subsidy schemes in Chile (based on household means) and in Colombia (based on categories of socio-economic status and socio-geographic context) found that means-tested subsidies were more effective at identifying poor households than geographical targeting (Gómez-Lobo & Contreras, 2003). Thus, a fair system could be one in which: subsidies are provided automatically to previously determined low-income areas; people living in different areas are also be allowed to apply for subsidies based on their particular socio-economic status; and income supplements could be attributed to certain households without a connection to a water or sewage network, including rural households.

In this context, it is relevant to mention the benefit that can be derived from broader mechanisms such as “social protection floors”, nationally defined social security guarantees that ensure access to a basic income and essential services, including water and sanitation (ILO, 2012). For instance, Cambodia’s National Social Protection Strategy for the Poor and Vulnerable considers sanitation and water-related interventions as priorities in times of emergency and crisis (UNDP & ILO, 2011). Mexico’s federal budget for social spending, which contributes to maintaining a social protection floor, also includes water supply and sewerage (UNDP & ILO, 2011). Another valuable idea was recently established in Philadelphia (United States), where the city must mandatorily refer low-income residents to a programme that will ensure their water bills are affordable in relation to their income (UNHRC, 2015a).

6. Attempts to ensure access to adequate and affordable sanitation

Community-Led Total Sanitation (CLTS) is an alternative movement that has been achieving relevant results in curbing open defecation in many developing countries and provoking diverse reactions around the world. It is notable for its deliberately untactful approach; it promotes awareness of sanitary health risks by attempting to stigmatise how insalubrious a given area is due to the reigning, precarious sanitary and hygiene practices (Kar & Chambers, 2008). In principle, the movement is against the use of subsidies, believing that too often they lead to the deployment of false solutions that are incompatible with real local needs and desires. Instead, community members are encouraged to take consciousness of the importance of improved sanitation and band together to devise their own solutions.

Some alternative visions to CLTS suggest that it could be wise to embrace the use of public funds in secondary stages, for instance to maintain and empty pit latrines, and to continue performing public health interventions that promote good sanitation and hygiene practices (see WSSCC, 2014). While the use of microfinance is also suggested to allow for the construction of more advanced infrastructure (e.g. toilets), which could then be paid off over a two- or three-year time frame, affordability concerns may remain for the poorest households.

Yet, the CLTS movement has received several critiques from the point of view of the human rights framework (Bartram et al., 2012). Notably, in the context of the present discussion, the poor people that are usually targeted in these interventions, when left to

rely only on their own means, may lack the necessary resources to achieve access to appropriate sanitation services. Indeed, from a human rights perspective this movement may be likely to produce less than acceptable solutions for all the poor and marginalised, who may be capable of building no more than a pit latrine with their available resources, and may not be able to properly maintain and significantly improve it over time (Galvin, 2015). Moreover, it is important to recognise that communities often cannot be treated as a whole; deep-seated power asymmetries and inequalities perpetuate the conditions responsible for marginalizing some people (e.g. based on caste, religion, ethnicity). In other cases, community cooperation may simply not be forthcoming. Instead of responding to exterior efforts to make people feel self-empowered, many people may instead insist on receiving the help of others in order to see their right to sanitation fulfilled. Thus, solutions that apparently favour the improvement of a more affordable access to water and sanitation services, as appears to be the case in the CLTS movement, merit a more critical assessment to ensure full compliance with the human rights framework.

7. Challenges for monitoring

As alluded to previously, given the multiple ways in which people receive services and their diverse socio-economic profiles, monitoring affordability in all contexts is a formidable task. However, it is only with efficient monitoring that States can be certain that they are providing support to the individuals and households who truly require it. Calculating affordability standards can be difficult as they often attempt to merely measure the expenses of a household on WSS as a percentage of the household's income. Expenses related to water and sanitation can be derived from a variety of activities though – especially in informal settlements – which makes this part of the calculation difficult. Moreover, incomes are often not well-known and fluctuate over time in poor households.

Alternative approaches to monitoring affordability may consider the impact that the cost of WSS has on people's enjoyment of other human rights. This sort of human rights-based monitoring might be better at grasping the concept of affordability in a way that is amenable to making more contextualised assessments of people's situations and needs. For example, it could allow treaty bodies to detail how the lack of affordable WSS can impact on a family's ability to maintain a household, or on a child's ability to attend school.

In this context, the Equitable Access Scorecard, developed by the ECE Protocol on Water and Health, is a valuable tool that assists States in monitoring affordability. Beyond the affordability of tariffs and expenses in general, it suggests such measures as monitoring the inclusion of affordability concerns in WSS policy, assessing the affordability of self-provision, analysing the use of public funds to address affordability concerns, and examining if social protection measures are effectively contributing to ensure affordability (ECE/WHO, 2014). Assessing self-provision is particularly relevant, as research points out that “indicator options that only capture financial cost will not fully reflect the affordability of [water, sanitation and hygiene] services for poor people, whose main cost to access services is time and not money” (Hutton, 2012).

As for global monitoring, the SDG target 6.1 explicitly refers to achieving affordable drinking water for all. This implies increased challenges for data gathering and comparability. Utilities provide data on the households that receive their WSS through the International Benchmarking Network for Water and Sanitation Utilities, including data on the tariffs charged by a wide number of utilities.⁵ Thus, as previously alluded to, given the difficulties involved in efficiently monitoring non-network provision, where monetary costs are but one aspect of the costs that many people and groups bear to access WSS, many States will have to make considerable efforts to provide the data required by the global development agenda. This necessarily entails a more complex analysis of multiple types of data from various sources, but is the most compatible approach with the human rights framework.

8. Conclusion

Ensuring affordable WSS services for all people is an obligation to virtually all States worldwide under the United Nations human rights framework and is embodied in various international treaties. Affordability is but one of various criteria (or “normative content”) and principles that are the cornerstones of the human rights to water and sanitation under this framework. Many States and regions continue to struggle in elaborating appropriate policy and service frameworks that reconcile the priorities of providing affordable WSS to all users while also attending to concerns for environmental and economic sustainability. Yet, there are increasing efforts to do so, as the past few generations have seen civil society and government authorities worldwide extending the notion of equity or justice to the environment and to the billions of people who still use unsafe and unacceptable WSS – often for lack of a more affordable alternative. Achieving balance between these symbiotic priorities and the need for economic feasibility in WSS is mainly where tensions are concentrated.

Given the ambitious goals that have been welcomed by all States to end these injustices and provide safe, affordable services to all people by 2030 (SDGs), it has become an urgent task for governmental bodies and service providers to assemble the complex structures required to make quality services affordable for all. The provision of WSS incurs more than just direct costs related to building, operating and maintaining infrastructure; the indirect costs that come from corruption and poorly organised or short-sighted services can be colossal setbacks. What is more, the economic potential of the WSS sector makes it open grounds to stakeholders wishing to maximise water’s value. In this context, an effective legal and policy framework with accountable regulatory mechanisms is key to ensuring the affordability of water and sanitation services.

The principle of social equity is especially relevant as concerns the ways in which public authorities or service providers target the people and groups that need safe, quality WSS most. Mainly, there is an urgent need to reach all people in society that require help instead of offering undeserved assistance to people with comparatively lesser needs. A variety of approaches exist that attempt to assist the most marginalised and disadvantaged either with the direct costs related to their WSS or by directing more general aid aimed at supplementing the costs involved with these human rights, and potentially others (e.g.

adequate housing, health, education, work). To reconcile affordability with priorities related to environmental protection and the economic feasibility of systems, a review of many worldwide experiences indicates the need for an institutional structure with a tightly coordinated arrangement of legal provisions (i.e. formally recognizing the human rights to water and sanitation); contextually specific policy plans; rights-based, accountable regulatory mechanisms; and efficiently organised service providers.

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Endnotes

¹The present article is largely based on: United Nations Human Rights Council (UNHRC, 2015a). *Report of the Special Rapporteur on the human right to safe drinking water and sanitation (On Affordability)*, Léo Heller, UN Document A/HRC/30/39, Geneva.

²The indicator for target 6.1 is: “By 2030, achieve universal and equitable access to safe and affordable drinking water for all”, United Nations Economic and Social Council, Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators, E/CN.3/2016/2. New York, 2015; 17 dec.

³See Newton, (2012) for a discussion of the interrelated socio-technical challenges facing twenty-first century cities, including the sectors of water, wastewater, energy, transport and communications, buildings and broader urban development.

⁴See Satterthwaite (2015) for very relevant examples of the diverse types of time and health-related costs that may come from having to fetch and haul water over long distances, a task most often attributed to women and girls.

⁵See International Benchmarking Network for Water and Sanitation Utilities, Tariffs Map, available from http://www.ib-net.org/en/tariffs_map.php

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