



The impact of corruption on access to safe water and sanitation for people living in poverty

Query

First, what financial and health-related effects does corruption in the water and sanitation sector have on people living in poverty? Second, what kinds of measures can reduce corruption in this sector? Third, please provide a short list of essential reading on this issue.

Purpose

We intend to present a short brief on corruption in the water and sanitation sector at the 2017 World Water Week.

Content

1. Background and the scale of the problem
2. Drivers and forms of corruption in the water and sanitation services (WSS) sector
3. Effect of corruption on access to safe water and sanitation for those living in poverty
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Caveats

Much of the relevant material is around a decade old and therefore a little dated. There is also a

major gap in the literature regarding the poverty impacts of corruption in the water sector. The main challenge appears to be the lack of recent data on the levels of corruption, which would be needed to comprehensively analyse the poverty impacts of corruption.

This answer draws heavily on a forthcoming topic guide produced by Transparency International on corruption and public service delivery, one of the sections of which examines corruption risks and anti-corruption measures in the water and sanitation sector.

Summary

The fact that the poor are the hardest hit by corruption in the water and sanitation services (WSS) sector is almost unanimously agreed upon. Corruption in the WSS sector generates “water poverty” by reducing the quality and availability of services, with disproportionate and adverse effects on the poor and marginalised.

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Corruption contributes to the failure to enforce laws meant to protect water sources from encroachment and pollution, produces discriminatory outcomes in water flows and irrigation patterns in favour of the powerful, leads to poor quality water infrastructure and fatally undermines fair and affordable access to water and sanitation. It consequentially exacerbates the already precarious lives and livelihoods of the poor – especially where these are related to other vulnerabilities such as gender, age or ethnicity – and reduces their ability to escape poverty.

While a number of qualitative studies have identified the kinds of corruption in the sector which have particularly severe and deleterious effects on the poor, measuring this “poverty impact” has proved more challenging. Nonetheless, some, albeit rather dated, quantitative estimates do exist, and overall the literature lends some impression of the effect of corruption on the poor, particularly in terms of financial and health-related impact.

Measures to reduce corruption in this sector can be categorised in line with a recent “integrity wall” framework developed by the Water Integrity Network. Such approaches range from scaling up diagnostic efforts, promoting fair competition in procurement, strengthening monitoring and oversight from above and below, and promoting participation in water governance by the poorest and most marginalised in society.

1. Background

Water and sanitation services (WSS) are essential to sustainable development. Yet 663 million people do not have access to clean water, and almost 2.4 billion do not have access to adequate sanitation (WHO/UNICEF 2015). Without such facilities, preventable diseases are deadly; the World Health Organisation estimates that 3 million deaths each year are attributable to water-borne diseases (Odiwuor 2013).

Evidence indicates a causal and symbiotic relationship between poverty and the lack of water; two-thirds of those without access to safe drinking water live below the poverty line (Transparency International 2008a: 41). Access to WSS can be a crucial factor in the ability of poor households to generate sufficient savings to break the cycle of poverty, a phenomenon economists have referred to as the low-level equilibrium trap (Nelson 1956).

The less time those living in poverty have to dedicate to collecting clean water or spend bed-ridden with crippling water-borne diseases, the more productive they could be – from entering the labour force to studying more (Transparency International 2008a: 41). One study in Kiribati found that clinic, hospital and medical expenses accounted for only 22% of the total economic burden of inadequate water and sanitation. The remaining 78% represented the opportunity cost of time and lives lost by those suffering from water-borne diseases and their caregivers (Asian Development Bank 2014: 31).

In the face of climate change and the population boom, improving governance and integrity in the WSS sector becomes even more urgent as the quality and availability of water resources become increasingly fraught. Forty per cent of people currently live in areas of water stress, a figure forecast to increase to 65% by 2025 (Water Integrity Network 2016: 23). Recognising this impending crisis, world leaders have committed to “ensure availability and sustainable management of water and sanitation for all” (SDG 6) as part of the 2030 Agenda for Sustainable Development.

Massive investment is needed in the sector to tackle these challenges; Hutton and Varughese (2016: 9) note that the global cost of achieving Sustainable Development Goal targets 6.1 and 6.2 will be approximately US \$ 114 billion annually, around three times the historic spending on extending WSS services to the poorest. While governments, multi-lateral development banks, donor agencies, charities, municipalities, private enterprise and service users collectively spend billions of dollars per year on water infrastructure and services, there is a broad consensus that corruption is fatally undermining the resilience of communities to withstand the water crisis and preventing the realisation of the 2030 Agenda (Water Integrity Network 2016: 23).

Corruption in the sector also has devastating short-term impacts, endangering health outcomes, food security and people’s livelihoods, which in turn undermine economic development, environmental sustainability and socio-political stability. Corruption can pervade all aspects of water management, inflating the costs of drinking water, hampering reliable supply of irrigation or fuelling large-scale water pollution in many countries of the world, all of which endanger citizens and complicate efforts to mitigate and

adapt to climate change (Transparency International 2008a).

Until relatively recently, water management was largely considered a technocratic engineering challenge in most countries, with scant attention paid to corruption and its impact on the political and social dimensions of water management (Allan 2003).

In the last decade, however, there has been some progress on the governance front to address these issues. An initial body of evidence of corruption in the water sector was assembled in the 2000s, in line with the general vogue for sectoral assessments of corruption risks. This research culminated in the 2008 Global Corruption Report: Water and has subsequently tailed off.

Nonetheless, building on this work, a number of governance initiatives have since been launched in the sector. In 2010, the UN General Assembly recognised access to safe drinking water and sanitation as a human right¹, and both the UNDP and the OECD have stated that water integrity is essential to development outcomes in the sector (Water Integrity Network 2016: 54; OECD 2015). The 2013 Delft Statement on Water Integrity goes even further, stating that the primary cause of water crises is not scarcity but governance failures, including corruption (Water Integrity Network 2016: 54).

2. Drivers and forms of corruption in the WSS sector

The incentives for corruption in the water sector are high: water sector institutions are natural monopolies responsible for projects with high initial capital and maintenance costs, and which are managed by officials with large amounts of discretionary power. In poorer countries, corruption may be a coping strategy of the marginalised where official provision by the state or legal operators is inadequate (Transparency International and Water Integrity Network 2010). Increasing water scarcity due to factors such as climate change, population growth, urban sprawl and economic development raises the stakes in

the water sector and thereby exacerbates the integrity risks (Transparency International 2008a).

Complexity

At the national level, water management may be the responsibility of more than one agency or ministry, with irrigation, sanitation, urban water services and hydroelectric infrastructure falling under the jurisdiction of different government bodies. It is therefore challenging to design comprehensive anti-corruption strategies for the sector. In highly corrupt environments, regulatory bodies are likely to face conflicts of interest, especially when a government department assumes the dual role of water service provider and regulator (Transparency International 2008b).

Furthermore, watercourses are not confined to national borders, and differing governance arrangements in countries sharing the same water body can be exploited for corrupt purposes (Transparency International 2008a).

Water management also typically involves large-scale infrastructure projects such as dams that are technically complex, capital intensive and difficult to monitor, and a small number of actors and providers with sweeping discretionary power. In spite of its impact on human development and environmental sustainability, monitoring the quality of water services is often costly and requires technological capital and capacities that may not be available to low-income countries. Contracting water quality assessments on a regular basis to audit the work of water inspectors may be costly and time consuming (Transparency International 2008a).

Indeed, the technical complexity of the sector makes it difficult for civil society to meaningfully participate in decision-making, monitoring and oversight (Transparency International 2008a). Moreover, water security, particularly as related to large infrastructure projects, is often perceived by governments to be central to national security. As such, civil society space may be limited.

Informality

Particularly in certain low-income, water-scarce countries, informal service providers and water cartels can be both a driver and consequence of

¹ Resolution 64/292 of the General Assembly recognises that the human right to safe drinking water and sanitation is implicit in both the International Covenant on Civil and Political Rights

(ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR).

corruption. These problems are exacerbated in informal or illegal settlements such as slums where citizens are likely to be underserved by the state apparatus, which may even prohibit water suppliers from providing a connection to such areas. Even when a water service is available, poor households may be unable to apply for a water connection without proof of a land title (Transparency International 2008a: 42).

This deprives the poor of the cheapest source of water and leaves them reliant on informal providers, who often operate in a legal limbo, selling water of dubious quality off the back of trucks (Transparency International 2008a: 43). A study by Transparency International Kenya found that 56% of water users in urban areas relied on informal water providers including water kiosks, local boreholes, well owners and water vendors operating beyond regulatory control (Transparency International Kenya 2011).²

Being outside of the law enables such informal providers to establish monopolies and set prices far in excess of public utility rates for water access. For instance, buying the recommended 50 litres of water a day can cost 54% of a typical low daily salary in Papua New Guinea. In contrast, a person on a minimum wage would spend 0.1% of their daily salary to buy the same amount of water in the UK (WaterAid 2016). Fees charged by these groups are generally free of all accountability mechanisms and revenues are unlikely to be invested in water delivery infrastructure, meaning illicit access fees paid by the poor are effectively lost to the sector (Water Integrity Network 2016).

The failure of municipalities, regulators or service providers to intervene is often due to their own implication in such schemes. There are well-documented instances of officials colluding with “water mafias” in Kenya, for instance, who exploit the poor by forcing them to rely on high-cost and low-quality services (UNESCO-IHP 2012). By colluding with official service providers (either public officials or employees of private companies) to siphon off water, such “water mafias” can sell water for an astonishing mark-up. In Mexico, staff from water utility companies are

believed to profit from the illegal sale of water rights, which is forbidden under Mexican law (Reis 2014).

Overall, the lack of access to a formal and legal water connection makes the poor extremely vulnerable to corruption and reliant on potentially unsafe and overpriced water from cartels that often are operating illegally (Transparency International 2008a).

Privatisation

Particularly during the 1990s, pro-market solutions were posited as being an effective means of reducing corruption in the water sector (Transparency International Indonesia 2008). Since the 2000s, the appraisals of the private sector’s contribution have become more nuanced (Hirvi and Whitfield 2015).

Academic studies have found that, while private sector involvement can provide high quality water and sanitation services through public-private partnerships where these are adequately governed by the state, in highly corrupt settings, private actors tend to pursue profit maximisation over the public’s needs, which can lead them to provide water but neglect sanitation facilities (Pusok 2016).

Other researchers have noted that introducing market-orientated solutions, such as payment systems, has been aggressively promoted by donors in the name of strengthening institutions and financial sustainability in the WSS sector. However, in some instances this has created a “new interface where corruption might take root” (Butterworth and de la Harpe 2009).

While private operators can contribute much-needed capital and technology, they also bring risks in the award and oversight of procurement tenders and, where pricing is not structured in a pro-poor fashion, the costs will remain prohibitively high for poor households (Transparency International 2008c). In Ghana, for instance, water tariffs increased by 80% after privatisation, and around 30% of the population still lack access to clean water (Odiwuor 2013).

² For a comparative country overview of the proportion of the population (disaggregated into urban and rural) with access to varying qualities of water and sanitation services, see Annex 3 of the 2015 UNICEF report *Progress on Drinking Water and Sanitation*.

<https://www.unicef.pt/progressos-saneamento-agua-potavel/files/progress-on-sanitation-drinking-water2015.pdf>

Water's natural inelasticity as an economic commodity has serious implications for those priced out of the market. In South Africa in 2002, for want of a US\$7 reconnection fee, the community's previously free clean water supply was turned off by the private service provider, exacerbating a cholera outbreak which ultimately infected 140,000 citizens (Goldman 2007: 787).

management of organisational resources and the point of service delivery.

Forms of corruption in the WSS sector

As shown in the following diagram, corruption risks can be grouped into different stages of the water supply chain, from policy formulation to the



Source: Transparency International. 2017. *Monitoring Corruption and Anti-Corruption in the Sustainable Development Goals*

Policy formulation

At the regulatory level, decisions made for water allocation and sharing can be captured to favour the interests of a small number of water service providers and users. Observers note that wealthy people or those with political connections frequently abuse their position to “unduly influence the location of a water source at the cost of the poor” (Odiwuor 2013).

Undue influence at the policy-making level can also distort or prevent effective enforcement of environmental regulations, with private companies and corrupt public officials colluding to cover up the environmental and social impact of major water projects, or distort the selection and approval of major water schemes (Chêne 2009). This is ultimately likely to affect the cost and quality of large-scale water infrastructure projects and undermine the sustainability of water resources.

Management of organisational resources

Corruption can distort the allocation of resources, with rent-seeking behaviour resulting in the promotion of inappropriate types of projects and high-cost infrastructure investment instead of lower cost and more efficient solutions. Fraud, falsification of accounts and embezzlement can also affect water management budgets and divert funds for a water supply network into the pockets of corrupt actors.

The sector is also characterised by high-risk procurement, with various forms of bribery in relation to licensing, procurement and construction. Water infrastructure and water treatment services tend to involve heavy and long-term investments for storage, extraction, treatment and conveyance of water, with highly lucrative contracts and a relatively small number of service providers and public officials involved. This can create rent-seeking opportunities and provide fertile ground for bribery, extortion and collusion in the awarding of contracts.

Collusion or bid rigging in the water sector are widespread in both developed and developing countries and involve international and national actors (Transparency International 2008a). A notable example is the Lesotho Highlands Water Project, the chief executive of which was convicted of 13 counts of bribery and accepting more than US\$2 million in return for the contract (The Economist 2002). In 2012, after nine years in prison, the same man was appointed technical

advisor to the Lesotho Highlands Water Commission (Mail & Guardian 2012).

Integrity risks escalate in situations in which regular procurement processes are suspended to respond to humanitarian crises such as severe flooding. In the Indian state of Bihar in 2005, officials and companies were charged with embezzling some US\$2.5 million from the emergency flood relief fund (Transparency International 2008d).

Beyond the tendering process, costly infrastructure projects like hydroelectric dams and dykes are particularly prone to corruption, as construction companies may seek to lobby, bribe or influence decision makers to amend the terms of the contract, change infrastructure locations or use substandard material and equipment to cut costs and maximise profitability.

Even where such megaprojects are subject to environmental impact assessments (EIA), corruption can render the process futile. In India, for example, such assessments are commissioned to private consultants and funded by the very companies seeking licences. In the mining sector, this has meant that fewer than 3% of EIA applications are refused, with serious implications for the water table and the quality of water in these areas (Human Rights Watch 2012).

Corruption can also affect the management of human resources, as the water sector offers many possibilities for personal enrichment and extortion. In some countries, cronyism, nepotism, political patronage and bribery often drive appointments, promotion and transfers to lucrative positions within water-related public bodies.

Service delivery/client interface

At the point of service delivery, bribes may be extorted by service providers in exchange for access to a water connection. Administrative or petty corruption can also enable households, farmers, companies and other users to get access to water more quickly or cheaply. Public officials can be bribed to secure preferential treatment, such as securing access to water during the dry season, droughts or diverting water from one area to another.

Kickbacks and bribes can also be offered to regulatory officials to turn a blind eye to water overuse or pollution discharge. In water treatment and sanitation services, corrupt water quality

inspectors can provide false documentation on the quality of water that water treatment plants produce or the toxicity of wastewater produced by industry.

Companies and individuals can bribe officials to dispose of more waste than government regulated quotas, while corrupt inspectors can overlook the excessive extraction of water from fragile ecosystems and low water tables or the illegal dumping of raw industrial waste or sewage into natural ecosystems.

Finally, inspectors involved in monitoring infrastructure quality can also be bribed to turn a blind eye to substandard materials and equipment.

3. Effect of corruption on access to safe water and sanitation for those living in poverty

Corruption in the WSS sector has disproportionate and adverse effects on the poor and marginalised. Corruption contributes to the pollution of drinking water, discrimination in water flows and irrigation patterns in favour of the powerful, as well as inadequate water infrastructure, which all exacerbates the already precarious lives and livelihoods of the poor, particularly where their poverty is multidimensional and related to other vulnerabilities such as gender, age or ethnicity (Transparency International 2008c; Water Integrity Network 2016:50).

This is a widely held consensus: a recent report of the Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation, for instance, states that “corruption tends to disproportionately affect poor and disadvantaged individuals and groups, as they lack the necessary power to oppose the vested interests of elites, and do not have the necessary resources to pay bribes”. (UN General Assembly 2015).

In fact, given the high inelasticity of water as an economic resource, the poor arguably suffer from governance failures in the water sector to an even greater extent than in other areas of service delivery (Plummer and Cross 2007).

Several quantitative studies have attempted to investigate the statistical relationship between levels of corruption and access to safe drinking

water and adequate sanitation. Anbarci, Escaleras and Register (2009) find that, across 85 countries observed over a period of 14 years, there is a statistically significant, negative relationship between corruption and access to water, while a previous study from the same authors (2006) found that, in a sample of 77 countries, corruption leads to lower levels of access to improved drinking water and appropriate sanitation than analysis of a given country’s per capita GDP and other institutions would predict. Other research supports the finding that corruption appears to have a strong correlation with reduced access to water and sanitation services (Kenny 2006).

As seen in the previous section, corruption in the WSS sector takes a range of forms, and the effects on the poor will vary accordingly, though it is difficult to ascertain which has the most severe impact.

Petty corruption between lower-level officials and service users certainly entails the most direct effect on those living in poverty. Typically, it involves “small payments to secure or expedite the performance of routine, legal or necessary actions such as getting a water connection or having a repair attended to” (González de Asís et al. 2009). This type of corruption is generally found to be pervasive in water-scarce countries with weak governance systems (Butterworth and de la Harpe 2009).

The literature notes, however, that the impact of this kind of corruption is nuanced. In informal settings, such as slums, bribe-giving may be a household’s only option to access clean water and as such a vital coping mechanism in instances of state failure where accessing water would otherwise be even more difficult (Water Integrity Network and WaterLex 2013).

Corruption occurring higher up the water supply chain, such as embezzlement by water officials, collusion in the bidding process for water infrastructure projects or the exclusion of the community from participatory processes also affects the day-to-day struggle of the poor (Transparency International 2008a: 45). This kind of corruption is likely to reinforce inequitable water policies and divert resources away from projects designed to benefit the poor, and, as such, may have more profound negative impacts on the poor’s access to water (Water Integrity Network and WaterLex 2013).

For instance, where corruption plagues megaprojects, such as dams or hydropower plants, the poor generally do not benefit from the promised improvements in irrigation, power generation or clean water, and officials and company employees may help themselves to resettlement funds intended to compensate displaced communities (Transparency International 2008c).

Financial impact

At the aggregate level, World Bank studies, which take premature deaths, health costs and productivity losses into account, estimate that the annual cost of poor sanitation to Ghana, Niger and Uganda is estimated to be 1.6%, 2.4% and 1.1% of GDP respectively (World Bank 2012). Other estimates by the UNDP are that, across Africa the cost of dirty water as well as inadequate sanitation is equivalent to around 5% of GDP (UNDP 2006). A more recent study by the Asian Development Bank (2014: 30) found that in Kiribati, inadequate WSS results in an average annual economic cost of between AUS \$550 - \$1,083 per household.

However, determining the financial impact of corruption in the water sector on the poorest in society is no easy task due to a lack of reliable metrics (Transparency International 2008a: 10). According to the 2014 UN-Water Global Analysis and Assessment of Sanitation and Drinking Water, the vast majority of countries have no comprehensive means of tracking funding targeted at improving water and sanitation systems, and under the Millennium Development Goals fewer than 50% of countries measured progress in extending water and sanitation services to the poor (UN-Water and the World Health Organisation. 2015). In sub-Saharan Africa, despite the 2008 eThekweni commitment to provide separate budget lines for water and sanitation, the quality and transparency of government reporting of sanitation financing still remains low (Water Aid 2013).

Despite the uncertainty around the level of WSS investment targeted at the poor in many parts of the world, there are some staggering estimates about the scale of corruption. Corrupt actors both divert funds intended to improve the quality and availability of precious water, as well as extracting "rents" in the form of bribes from predominantly poor water users. In this way, investment in the WSS sector is squeezed dry from above and

eroded from below, denying fair and affordable access to the most vulnerable in society.

The World Bank estimates that, globally, between 20% to 40% of public investment meant for the water sector is lost to corruption (Odiwuor 2013), while Estache and Kouassai (2002) estimated that nearly two-thirds of the operating costs for 21 water companies in Africa were attributable to corruption. In Nairobi, for instance, the City Water and Sewerage Company is thought to lose around 40% of its water supply to theft and leaks, often with the collusion of water officials (Migiro and Mis 2014).

At the level of individual households, corruption is thought to increase the price of obtaining a water connection by as much as 30% (Transparency International 2008a: xxiv). In Uganda, a study found that 46% of all urban water consumers had paid bribes to secure a connection (Odiwuor 2013).

Both by stripping the sector of precious financial resources and by distorting policy priorities, corruption can prevent the extension of new pipelines and connections, meaning in many countries, the poor are reliant on informal water suppliers, often from tankers, where the costs can be even higher (UNDP 2011).

In Nairobi, many poor residents are forced to buy water from informal private vendors at anything from 10 to 25 times the price they would pay the public utility company. In the city's largest slum, water is often the largest household expenditure and devours around a third of slum dwellers' incomes (Migiro and Mis 2014).

A 2005 study by the Peruvian Ombudsman's Office showed that slum dwellers in Lima pay five times more for water than those living in high income areas (Defensoria del Pueblo 2005). Likewise, the Karachi Water Partnership found that poor people in Pakistan pay, on average, 12 times as much as the affluent (Dawn 2011). Other studies have revealed that the poorest households in El Salvador, Jamaica and Nicaragua spend more than 10% of their income on water (Transparency International 2008a: 10), while a recent report found that in the majority of low-income countries in Sub-Saharan Africa, the operational costs of basic WSS services alone equate to more than 5% of poverty income levels (Hutton and Varughese 2016: 20).

In low-income countries, studies have found petty corruption to be rampant in the sector (Davis 2004; Transparency International Kenya), and although such bribes typically involve small amounts of cash, these many little incidences of petty corruption swiftly add up, and the poorest can ill afford them (Butterworth and de la Harpe 2009).

Finally, in rural areas, other forms of corruption, such as companies bribing water quality officials to avoid penalties for polluting water or to be permitted to extract excess amounts of water from aquifers, can cripple the livelihoods of small farmers and fishermen reliant on such water for irrigating their crops (Water Integrity Network 2016: 50).

Impact on health

Corruption in the WSS sector impacts the health of those living in poverty in a number of ways, from undermining their food security to being an enabling factor in the spread of water-borne diseases (Duflo, Galiani and Mobarak 2012). An estimated 80% of health problems in developing countries are in some way related to inadequate water and sanitation (Transparency International 2008a: 42).

Yet, resources allocated to WSS management can be stolen or diverted, undermining the quality and quantity of infrastructure intended to both deliver water and transport human waste. A survey by J-PAL of over 5,000 slum dwellers in Delhi found that nearly half reported water scarcity and over 80% of toilets had faecal matter or significant amounts of other waste around the facilities, and that corruption was a key barrier to improving these services (Duflo, Galiani and Mobarak 2012). Another study in Andhra Pradesh identified that WSS investments in schools were much needed as 10% did not even have basic toilet facilities but that such investments were particularly susceptible to corruption (Reddy and Murali 2015).

Water-borne diseases

Analysis of household survey data has shown that a lack of access to uncontaminated water is a major cause of death in developing countries, particularly among children (Leipziger 2003). A recent estimate by WASHwatch put the number of deaths of children under five from diarrhoeal diseases caused by poor water and sanitation at 289,000 per year (WASHwatch 2017). Even in

instances where such water-related ailments do not prove fatal, they are a major obstacle to development; annually, students suffering from water-borne diseases are estimated to miss 443 million school days (Transparency International 2008c).

By resulting in faulty infrastructure and low-quality water treatment, corruption raises the risk of human waste and pollutants leaking into water bodies, threatening freshwater ecosystems and jeopardising potable water supplies (World Health Organisation 2002; Transparency International and Water Integrity Network 2010). Reliance on informal vendors exposes the poor to health risks, as unregulated providers often lay pipes next to open drains, resulting in a breeding ground for cholera, dysentery, typhoid and diarrhoea (Migiro and Mis 2014).

A 2011 study estimated that each year around 140,000 child deaths could be related to corruption, exceeding the combined total of child deaths from cholera, rabies, Ebola and combat (Hanf et al. 2011). The study concluded that policy responses to reduce child mortality must include increased investment in water and sanitation, but that this would be meaningless without further action to tackle corruption in the sector (Hanf et al. 2011).

Food security

Corruption in water management has a ruinous impact on food security. In places with little precipitation, low water tables, scarce access to water sources or drought, water conservation becomes essential to agricultural production. In India for instance, which has the largest irrigated land area of any country (Indian National Congress 2012), agriculture constitutes an astonishing 92.6% of the country's annual national water footprint (Mekonnen and Hoekstra 2011; 8).

Globally, irrigated land helps produce 40% of the world's food (Transparency International 2008a). Yet irrigation systems can be captured by the rich and powerful while spillages, leakage and bad water treatment can lead to water shortages or contaminate irrigation water. These situations can strain food security by causing crop failure in communities reliant on subsistence agriculture or leading to a precipitous rise in local food prices for the urban poor (Transparency International 2008a).

Women and girls

Corruption in the WSS sector has a particularly devastating impact on the health of women and girls by exacerbating existing service failures and reinforcing gender inequality (UNDP 2012). In Kiribati, for instance, a study found that female children had a significantly higher likelihood of suffering from diarrhoea and dysentery than male children (Asian Development Bank 2014: ix).

Women are often the most exposed to corruption risks such as petty bribery or sextortion in informal water networks, as they are typically expected to fetch water, cook, clean, wash and care for the sick (Cap-Net and the Gender and Water Alliance 2014).

At the same time, women are commonly excluded from making decisions on water issues, which means that their interests are not prioritised in service delivery (Water Integrity Network 2016: 82). To give one example, girls' toilets in schools are frequently neglected, with the result that girls stay away from school when menstruating (Van der Gaag 2010).

In three-quarters of households without a water connection, women and girls are the ones who collect water, and studies have shown that carrying water over long distances can have a direct effect on women's health such as musculoskeletal disorders, particularly in the spine or pelvis which can result in childbirth problems (Migiros and Mis 2014; Geere et al. 2010). The lack of access to water and sanitation facilities also exposes women to other risks, such as sexual assault when collecting water or relieving themselves at night (Water Integrity Network 2016: 82).

There are also indirect impacts on women where corruption impedes access to safe water and sanitation services. Time spent collecting water is time that cannot be dedicated to other activities such as income generation, study, participation in community decision making or leisure (Evans et al. 2013).

4. Measures to reduce corruption in the sector

The following section outlines some typical strategies to tackle corruption in the WSS sector. One thing to bear in mind is that much of the literature stresses that pro-poor anti-corruption

efforts need to focus on the types of service provision most relevant to those living in poverty, such as public standpipes or wells (India Water Portal 2012).

It is important that anti-corruption measures are designed in such a way that they do not undercut people's livelihoods; part of this will likely involve recognising that a crackdown on unofficial water vendors without concomitant efforts to provide clean, affordable water to the poor will simply restrict their access to water.

Instead, attempts to bring informal providers into the legal sphere through the use of licences, formal recognition and "light touch" regulation is considered to be a more fruitful approach to reducing corruption and improving access to water (Transparency International 2008a: 48).

Authorities in a number of countries, such as Senegal, Vietnam, Mozambique and Ghana, are said to have issued licences to inform vendors and laid down guidelines for independent providers (Trémolet and Hunt 2006).

The Water Integrity Network has developed a four-pillared approach to strengthening integrity in the WSS sector, based on the principles of transparency, accountability, participation and anti-corruption (Water Integrity Network: 34).

THE INTEGRITY WALL

How to strengthen INTEGRITY in the water sector



Adapted from the Water Integrity Global Outlook 2016



Throughout this section, a number of tools are presented, such as the [Annotated Water Integrity Scan \(AWIS\)](#), [integrity pacts \(IPs\)](#) and the [Integrity Management Toolbox](#). While these tools do not explicitly aim to alleviate the poverty impacts of corruption, they have been applied mostly in developing countries and can help prevent various types of corruption that are likely to have disproportionate consequences on the poor.

Transparency

Developing the flow of accurate and open information is crucial to understand the specific ways in which corruption in the WSS affects the poor, the most appropriate and targeted response, as well as the efficacy of the chosen strategy in reducing the impact of corruption on the poor's access to adequate water and sanitation (Water Aid 2013). Moreover, transparency itself creates strong disincentives for water sector officials or employees to engage in corruption, as where citizens have no knowledge of recurrent or capital costs, officials are better able to embezzle or misallocate budgets and relief funds (Plummer and Cross 2007: 239).

As such, transparency, particularly related to the financing of WSS, underpins an effective monitoring and accountability framework.

Transparency can be increased in a variety of ways, such as publishing utility budgets and contracts, or holding public meetings involving citizens, regulators and water sector officials.

Scaling up the diagnosis of corruption in water

More systematic research needs to be conducted to better understand the scope and nature of corruption in water, adapting tools such as corruption impact assessments, public expenditure tracking or corruption risk-mapping to the different areas of the water sector. When designing specific anti-corruption interventions, it is also important to develop a solid understanding of the local water context, including the conditions of supply and demand, existing infrastructure, and governance systems as well as the incentives of the local stakeholders to design targeted and effective reforms that are tailored to the local circumstances (Transparency International 2008a).

A tool that might be able to help achieve this is the [Annotated Water Integrity Scan \(AWIS\)](#), essentially a one-day multi-stakeholder workshop designed to quickly assess the water integrity risks which may facilitate corruption and identify priority areas for action (Water Integrity Network 2011).

Also of interest is the [Integrity Management Toolbox](#), which has been adapted and successfully applied in various contexts, including small and medium-sized enterprises and [community-managed water services](#) – two types of water service providers that have a very important role in extending WSS to rural areas and the poor.

Promoting fair and transparent competition for water contracts

Preventing corruption in the water sector requires improving financial and procurement rules, including enforcing stricter standards, coherent rules and increased supervision of disbursements, competitive bidding and contract implementation.

Transparency in the selection of contractors can be promoted by providing easy access to information, through a more systematic use of the internet and e-procurement. This helps to minimise interactions between public officials and bidding companies and pre-empt the development of corrupt networks. Tendering companies can be required to commit to a no-bribe policy and be subject to debarment procedures if they are found to engage in fraud or corruption. Strengthened due diligence measures are also instrumental to ensure fair competition for water contracts. In particular, given the large investments in the sector, export credit agencies, commercial banks and international financial institutions have a key role to play by integrating anti-bribery provisions in their due diligence requirements (Transparency International 2008a).

There are a number of different tools to curb collusion and bid rigging in tender procedures, such as integrity pacts, contract monitoring and disclosure of tender and contract documents (Water Integrity Network 2015). Integrity pacts have been used in some water projects such as the Greater Karachi Water Supply Scheme in Pakistan (B20 Collective Action Hub 2015), whereby a government and all bidders for a public sector contract agree that neither the government nor the contractor shall pay, offer, demand or accept a bribe or collude with competitors to obtain the contract. Such commitments can be monitored by civil society organisations or other independent parties. Bidders are also required to disclose all commissions paid to contractors.

Accountability

Accountability mechanisms are key to hold decision makers and implementers responsible for their actions.

Strengthening monitoring and oversight

Governments are primarily responsible for establishing effective regulatory oversight of the water sector. Measures aimed at curbing regulatory capture can include capacity building and training for regulatory staff, the provision of adequate resources (human, financial, technical and administrative), the creation of a clear institutional mandate, the implementation of transparent operating principles and the introduction of a public consultation and appeals process (Transparency International 2008a).

Monitoring and oversight mechanisms are key to ensure the enforcement of regulations, and, as such, they need to be robust, regardless of whether they are conducted by the central audit agency, parliament, anti-corruption agency, ombudsman, complaint offices and specific sector and local government organisations (UNDP 2011). This requires increasing the risks of detection by conducting regular independent audits, providing transparent access to public accounts, as well as establishing effective complaints mechanisms and whistleblower protection that encourages citizens and employees to report illicit behaviour without fear of retaliation. It also requires enforcing adequate and dissuasive sanctions, as deterrence must be supported by effective implementation of regulations.

Though this may involve investing in equipment and technology, monitoring mechanisms should also go beyond auditing of accounts and agent performance, and include monitoring the quality of water at each stage of the water cycle.

Where governments lack capacity to regularly monitor water quality, citizen scientists are in some instances stepping to fill the gap, aided by more affordable technology and support from NGOs (Sachdev 2017). Indeed, increasingly such monitoring systems provide for citizen participation and input with tools such as [citizen report cards](#), hotlines, feedback mechanisms to monitor the quality of water services provided by public and private utilities. For example, Corruption Watch in South Africa launched a comprehensive survey about corruption in the water sector, aiming to gather information about

citizen experience when interacting with water providers and officials (Corruption Watch 2014).

Improving human resource management practices

Water management institutions need adequate human, financial, technical and administrative resources to fulfil their mandate, including a professional and qualified workforce. Measures promoting transparency and integrity in employee appointment and job promotion constitute a first step to addressing corruption challenges in the sector's human resource management. This involves promoting merit-based appointments, compensation, promotion and transfer management systems and raising ethical standards through the introduction of codes of conduct, business principles and ethical training. The professionalism of the sector's workforce can also be strengthened through adequate remuneration to attract and retain qualified staff and on-the-job training and capacity building measures, including ethical training and awareness raising activities on the causes and consequences of corruption and measures to address it in the sector (Chêne 2009).

Participation

Transparency alone is not sufficient to reduce the destructive impact of corruption on access to water and sanitation services for the poorest in society. Information shared on how contracts are awarded must be useful, easy to understand and accessible in local languages. Media and civil society need to have the space and skills to follow-up on the findings and question the results. Otherwise, disclosure initiatives may just be paying lip service to transparency without achieving any real accountability, participation or integrity in the water governance system (Transparency International 2008b).

Promoting citizen participation in all relevant decision making is thus a key step to make sure that any reforms to the WSS sector are made in the interests of the poorest and most marginalised.

Promoting participation

Meaningful participation by marginalised groups can provide a means for including their concerns at all stages of the process, from water budgeting and policy development to the selection of sites for developing water infrastructure and the

management of water schemes in a way that ensures equitable access to water for all.

Community involvement in selecting the site of rural wells and managing irrigation systems can help to ensure that small landholders are not last in line when it comes to getting water for drinking and growing crops. Civil society participation in auditing, water pollution mapping and performance monitoring of public utilities creates important additional checks and balances (Transparency International 2008c).

Transparency International recommends that "tendered bids should be read aloud in community meetings, planning blueprints publicly posted, donor documents and water quality indicators uploaded to websites, and materials produced in a simple and accessible language – from service contracts to audit reports" (Transparency International 2008c).

Project budgets can be opened to scrutiny and water users can participate in decision making through social budgeting and social auditing. In Peru, for example, the management of large-scale irrigation systems was transferred to water users' associations, resulting in improved financial and water delivery performance (UNDP 2011). Where water users affected by corruption do not know where to access information or what their rights are, initiatives such as the [Water Journalists Africa](#) and the [WASH West Africa Journalists Network](#) can help by increasing knowledge about opportunities for participation (Transparency International 2012).

Civil society can also play an important role in the process from the design stage of water projects to the monitoring of contract implementation. Citizens can also be involved in decision-making processes for the development of new water infrastructure to inform project design. Reporting mechanisms provide other avenues for citizen participation, and citizens can use communications technology to monitor and report problems and issues related to water and sanitation services. Crowd-sourcing platforms used in Daraja, Tanzania, for example, provided citizens with digital platforms from which to complain about the lack of access to water or to report problems to engineers responsible or maintenance (Schouten 2012). These platforms contributed to reorient government water policy and increase maintenance and infrastructure budgets constantly for five years.

Other anti-corruption approaches

A range of anti-corruption approaches are presented in two somewhat older articles.

Tackling Corruption in the Water and Sanitation Sector in Africa from 2006 maps anti-corruption strategies against various kinds of corrupt interactions in public-to-public, public-to-private and public-to-consumer relationships, while a 2009 study *Improving Transparency, Integrity, and Accountability in Water Supply and Sanitation* presents a number of generic measures to reduce corruption in the sector, including access to information, participatory budgeting, public expenditure tracking, integrity pacts, complaints mechanisms, the introduction of ombudsmen, anti-bribery principles for business and e-government portals.

5. Essential reading

Background studies

Water Integrity Network. 2016. *Water Integrity Global Outlook*.

<http://www.waterintegritynetwork.net/wigo/>

This publication highlights how institutional fragmentation and corruption undermine resources and services in the water sector. It examines the strengths and weaknesses of integrity in various countries, providing examples of innovative programmes and projects that challenge the status quo and showcases tools and techniques that can drive better performance in the sector. Finally, it makes recommendations for action by governments, sector actors, the private sector and civil society bodies.

González de Asís, M. et al. 2009. *Improving Transparency, Accountability, and Integrity in Water Supply and Sanitation: Action, Learning, Experiences*, Washington DC: World Bank.

<https://openknowledge.worldbank.org/handle/10986/2628>

This manual seeks to increase the involvement of civil society by engaging all stakeholders in setting water supply and sanitation priorities and monitoring performance, including reducing opportunities for corruption. Second, it attempts to increase the contributions of water supply and sanitation services to poverty reduction by

demonstrating how to improve the quality and coverage of service to poorer communities on an equitable basis.

Module three is particularly useful as it presents a number of generic measures to reduce corruption in the sector, including access to information, participatory budgeting, public expenditure tracking, integrity pacts, complaints mechanisms, the introduction of ombudsmen, anti-bribery principles for business and e-government portals.

John Butterworth & Alana Potter. 2014. *Mainstreaming Anticorruption Initiatives: Development of a Water Sector Strategy in Mozambique*. Bergen: Chr. Michelsen Institute (U4 Practice Insight no. 2014:2) 14p.

<http://www.u4.no/publications/mainstreaming-anticorruption-initiatives-development-of-a-water-sector-strategy-in-mozambique/>

The National Water Directorate in Mozambique is one of the few public sector departments in the world known to have allocated its own resources to developing a sector-specific anti-corruption strategy. Its experience offers valuable lessons for others considering integrating anti-corruption in other sectors. Leadership needs to come from ministries with inter-sectoral mandates or through formal collaboration between different ministries. Government-led processes must be complemented by locally-driven social accountability processes.

John Butterworth and Jean de la Harpe. 2009. *Not So Petty: Corruption Risks in Payment and Licensing Systems for Water*. Bergen: Chr. Michelsen Institute (U4 Brief 2009:26)

<http://www.u4.no/publications/not-so-petty-corruption-risks-in-payment-and-licensing-systems-for-water/>

This U4 Brief focuses on the risks at the service provider-consumer interface associated with the small but numerous transactions involved in service payments or maintenance. The article looks at how donors and local governments may help prevent so-called petty corruption. It serves as a good introduction to corruption at the point of service delivery in the water sector.

John Butterworth and Jean de la Harpe. 2009. *Improving the Framework? Institutional Reform and Corruption in the Water Sector*. Bergen: Chr. Michelsen Institute (U4 Brief 2009:28) 4 p.

<http://www.u4.no/publications/improving-the-framework-institutional-reform-and-corruption-in-the-water-sector/>

This U4 Brief looks at institutional reform in the water sector, providing examples illustrating the actors and processes involved. An underlying premise is that corruption is persistent and manifests itself dynamically, challenging any pursuit of an ideal set of institutional arrangements. It suggests that more effort should be focused on effective regulation and oversight to address corruption. It examines how donor support to water sector institutional reform might potentially open space for corrupt practices and how donors can minimise or prevent these risks.

Transparency International. 2008. *Global Corruption Report: Corruption in the Water Sector*.

http://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

This report provides an in-depth look at issues related to corruption in the water sector, the scope and nature of corruption challenges and strategies to address them. In this report, scholars and professionals document the impact of corruption in the sector, with case studies from around the world offering practical suggestions for reform. After providing an introduction about the nature and scope of corruption in the water sector, the report covers four areas: water management, water supply, irrigation and water for energy use.

Janelle Plummer. 2007. *Making Anticorruption Approaches Work for the Poor: Issues for Consideration in the Development of Pro-poor Anticorruption Strategies in Water Services and Irrigation*

<http://www.u4.no/recommended-reading/making-anticorruption-approaches-work-for-the-poor-issues-for-consideration-in-the-development-of-pro-poor-anticorruption-strategies-in-water-services-and-irrigation/>

This Swedish Water House report highlights the need for greater attention to the poor in the development of anti-corruption strategies in the water sector, providing some pointers as to what

this could look like. To this end, the paper first considers how the poor interact with corruption, how they are affected by it, and how they use it to their benefit. It then considers some of the key factors that determine corruption in the water sector as it affects the poor. Finally, borrowing from the efforts of other sectors, it explores some of the key ingredients that might be considered in the development of a pro-poor anti-corruption water sector strategy. The report places significant emphasis on the role of anti-corruption practitioners as liaisons between different areas of the water sector that may suffer different sets of problems.

Janelle Plummer and Piers Cross. 2007. "Tackling Corruption in the Water and Sanitation Sector in Africa: Starting the Dialogue." In *the Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level*, eds. Sanjay Pradhan and J. Edgardo Campos. Washington, D.C.: World Bank Publications, 221–64.

<https://openknowledge.worldbank.org/handle/10986/6848>

This article looks at how to tackle corruption in the water sector in Africa. The authors start by evaluating the scope of the problem, providing insight on how different methodologies for diagnoses can be used by practitioners to understand corruption challenges. The article then considers potential anti-corruption strategies to address different types of water sector corruption and maps these against various kind of corrupt interactions in public-to-public, public-to-private and public-to-consumer relationships.

Patrik Stålgren. 2006. *Corruption in the Water Sector: Causes, Consequences and Potential Reform*. Swedish Water House Policy Brief Nr. 4. SIWI, 2006.

<http://www.waterintegritynetwork.net/2006/03/05/corruption-in-the-water-sector-causes-consequences-and-potential-reform/>

This policy brief looks at corruption in the water sector from a practitioner's perspective and aims to offer pragmatic advice about the challenges of fighting corruption in the water sector worldwide. The article begins by providing a taxonomy of corrupt acts related to the water sector and suggests potential reforms to address these challenges, including: legal and financial reform, service delivery reform, private sector reform and capacity building. It concludes by providing a set of recommendations to guide practitioners' action.

Practical insights: handbooks and toolkits

Water Governance Facility 2017. Developing Capacities for Water Integrity: Reflective Review of Approach and Impact of Training Courses.

<http://watergovernance.org/resources/developing-capacities-water-integrity-reflective-review-approach-impact-training-courses/>

This report provides a reflective review of the approach to training and capacity development as a contribution to improved water governance and reduced risk of corruption in the water sector. It draws on the experience gained from implementing several regional water integrity capacity development programmes primarily in sub-Saharan Africa and Latin America.

Water Integrity Network and WaterLex International. 2013. Corruption and the Human Right to Water and Sanitation.

http://www.waterlex.org/new/wp-content/uploads/2013/12/2013-WaterLex-WIN_Corruption-and-the-HRWS-.pdf

This joint paper elaborates a human rights-based approach to fighting corruption in the water sector. By associating corruption to a violation of a basic human right, one can potentially raise more awareness and gather more support for establishing counteractive measures. The document is especially useful for its fourth chapter on developing a legal framework to establish transparency, accountability and participation (TAP) mechanisms in water management systems, procurement and irrigation.

UNDP. 2011. Fighting Corruption in the Water Sector: Methods, Tools and Good Practices.

<http://www.undp.org/content/dam/undp/library/Democratic%20Governance/IP/Anticorruption%20Methods%20and%20Tools%20in%20Water%20Lo%20Res.pdf>

This study provides a comprehensive look at the nature and effects of corruption in the water sector. It describes corruption in water supply and sanitation, water management systems, irrigation and hydropower, elaborating the challenges related to each type of corruption. After mapping corruption risks in the water sector, the study presents methods and tools to measure corruption in the sector, looking in particular at increased government oversight, pro-market water sector

reforms and increased user and civil society oversight. The guide concludes by providing analyses of expected and desired outcomes of anti-corruption measures in the water sector.

Water Integrity Network. 2010. Integrity Pacts in the Water Sector: An Implementation Guide for Government Officials.

<http://www.waterintegritynetwork.net/2015/02/26/budgeting-and-procurement-tools/>

This integrity pact implementation manual is designed to help leaders and champions within their own governments across the world who are determined to overcome corruption in public contracting, particularly in the water sector. This manual is a hands-on, practical guide to familiarise government officials in charge of public procurement processes in the water sector with the integrity pact process and to provide them with tools and ideas for its application.

UNDP-SIWI Water Governance Facility, WIN, Cap-Net and WaterNet. 2009. Training Manual on Water Integrity. Stockholm: SIWI.

http://www.watergovernance.org/documents/WGF/Reports/Trainin_Manual/Final_training-manual-English.pdf

This training manual is developed to assist capacity builders in developing training and educational programmes on water integrity and how it can be promoted and worked with in more practical ways. The overall goal is to develop institutional capacities and prepare for change through increased knowledge and action on integrity, accountability and anti-corruption in any country or region. It looks at the following issues: water governance, corruption in the water sector, identifying corruption risks, anti-corruption laws, institutions and instruments, transparency and access to information, accountability and integrity in integrated water resources management.

Assessment tools and databases

Transparency International. 2017. Monitoring Corruption and Anticorruption in the SDGs: A Resource Guide.

http://www.transparency.org/whatwedo/publication/monitoring_corruption_and_anti_corruption_in_the_sustainable_development_go

As part of its follow-up and review mechanisms for the United Nations Sustainable Development Goals (SDGs), member states are encouraged to conduct regular national reviews of progress made towards the achievement of these goals through an inclusive, voluntary and country-led process. This guide is intended to explain the role of civil society organisations in monitoring corruption in the SDGs, as well as how to identify potential indicators and data sources for this purpose. Throughout the guide, there are country examples of indicator selection, inclusive follow-up review processes and approaches to corruption monitoring. A chapter is dedicated to mainstreaming anti-corruption in monitoring SDG 6 on water and sanitation.

Water Integrity Network. 2015. Integrity and Governance Assessments.

<http://www.waterintegritynetwork.net/2015/02/27/sector-integrity-and-governance-assessments/>

This webpage provides a toolkit for assessing the quality of governance within the water sector in a particular geographical area. The Water Integrity Network provides advice on how to develop an assessment tool, how to apply it and how to use the information derived from it. The webpage additionally features a list of assessment tools already in use and provides links to descriptions.

Water Governance Facility. 2013. User's Guide on Assessing Water Governance.

http://www.watergovernance.org/documents/WGF/Reports/20058-UNDP-Assessing-water_web.pdf

This document outlines current methodologies to measure and assess the quality of water governance and management in medium- and low-income countries. The guide proposes a framework that can be applied to any water governance assessment, based on different approaches for assessments around water integrity and anti-corruption in the water sector. It evaluates the usefulness of the application of different tactics to assess corruption and provides an eight-step assessment plan for any water governance integrity assessment.

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7. Annex

A recent Transparency International publication, *Monitoring Corruption and Anti-Corruption in the Sustainable Development Goals*, included examples of governance indicators which can be used to track the impact of corruption in the water sector. This typology is based on work by the OECD Water Governance initiative.

Sample Indicators	Metric/unit	Sources for methodology and/or data
Framework indicators: these indicators aim to capture evidence on the existing (or missing) framework conditions for a sector clean of corruption.		
existence of policies and regulations required to provide an enabling environment for the realisation of the human right to water and sanitation	<p>the right to water is expressly contained in the constitution or other law</p> <p>the right is justiciable in courts or other bodies</p> <p>there is a national strategy and plan of action for universal delivery of water and sanitation in a specific time period</p> <p>% of the national water and sanitation budget and of local authority water and sanitation budgets that is allocated to address the needs of marginalised and vulnerable groups</p>	UNHR
anti-corruption legislation	<p>the existing anti-corruption legislation is well established, includes freedom of information and protection of whistleblowers, and is relevant in terms of fines;</p> <p>access to independent information on anti-corruption legislation is well established and corruption cases are filed and properly dealt with</p>	<p>annotated Water Integrity Scan studies – Water Integrity Network (WIN)</p> <p>http://www.waterintegritynetwork.net/2015/02/26/sub-sector-participatory-assessments/</p>
transparency of online information provided by water management organisations	Water Management Transparency Index (assesses the extent to which a water agency makes relevant information available on its website)	<p>Transparency International Spain</p> <p>http://transparencia.org.es/en/index-of-water-management-intrag/</p>
Progress indicators: these indicators gauge the level of progress made to make the sector more transparent, accountable and subject to control by stakeholders and civil society.		
corruption in service delivery	% of respondents reporting having paid a bribe to obtain water services	Afrobarometer, World Bank enterprise surveys, Business Environment and Enterprise Performance Survey, household surveys
accountability towards water users	<p>average response time of water sector organisation to customer complaints</p> <p>% of complaints by water users that lead to corrective action</p>	<p>Integrity Management Toolbox</p> <p>http://www.waterintegritynetwork.net/imtoolbox/low-responsiveness-to-complaints/</p>

enforcement of regulatory frameworks for water pollution control	number of cases of deterioration of water sources brought to justice	UNHR Administrative data from law enforcement and judiciary
illegal water connections	number of re-connections to water services relative to reported disconnections	Integrity Management Toolbox http://www.waterintegritynetwork.net/imtoolbox/bribery-for-illegal-re-connections/
level of participation in local water service management	% of water points with actively functioning water and sanitation committees or boards	Uganda Water and Sanitation Sub-Sector (WSS) Golden Indicators http://envalert.org/wp-content/uploads/2016/09/SPR-2016_final.pdf
accountability in the use of resources	% of audit recommendations implemented from annual financial audits	Uganda WSS Good Governance Indicators http://www.mwe.go.ug/index.php?option=com_docman&task=doc_download&gid=966&Itemid=223
enforcement of regulatory frameworks for the abstraction of water resources and for water pollution control	% of water abstraction and discharge permit holders complying with permit conditions	Uganda WSS Good Governance Indicators http://www.mwe.go.ug/index.php?option=com_docman&task=doc_download&gid=966&Itemid=223
corruption risks in procurement	proportion of contracts awarded by water sector organisations where there was a single bidder, or a legally minimum number of bidders	national public procurement databases
Impact indicators: These indicators measure sector-specific outcomes and impacts that can relay varying degrees of evidence of integrity and corruption levels in the sector.		
loss due to illegal connections and leakage	non-revenue water (difference between water supplied and water sold) as % of water production	IBNET http://www.spml.co.in/downloads/reports/Blue-Book-Water-Supply-Sanitation-WB.pdf
progress with extending services to unserved and underserved	proportion of previously unserved or underserved population that was extended access to a safe and affordable drinking water source/wastewater services in the reporting period	UNHR http://www.ohchr.org/Documents/Publications/Human_rights_indicators_en.pdf
disparities in access to water service delivery by socio-economic grouping of household	% of households which reported water collection times greater than 30 minutes, where children/women are the primary collectors of water	multiple indicator cluster surveys; and Demographic and Health Survey http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0155981
	Water Poverty Index (measures the relationship between the physical extent of water availability, its ease of abstraction and the level of community welfare)	household surveys https://www.researchgate.net/publication/43996260_The_Water_Poverty_Index_Development_and_application_at_the_community_scale