TRANSPARENCY
INTERNATIONAL
the global coalition against corruption

CORRUPTION IN WATER & SANITATION SERVICES

—

**Compiled by the
Anti-Corruption Helpdesk**

Transparency International is a global movement with one vision: a world in which government, business, civil society and the daily lives of people are free of corruption. With more than 100 chapters worldwide and an international secretariat in Berlin, we are leading the fight against corruption to turn this vision into reality.

www.transparency.org

Design: sophieeverett.com.au
© Cover photo: Mahmoud Ahmed. Used with permission.
Image caption: A young woman in Nairobi, Kenya gazing with little hope at low wage jobs bulletin. A reoccurring scene around many countries where corruption and government nepotism results in the lack of opportunities for the youth.

CONTENTS

WHY FIGHT CORRUPTION IN THE WATER AND SANITATION SECTOR?

Water and sanitation services are essential to sustainable development. Yet 844 million people do not have access to basic drinking water and almost 2.3 billion do not have access to basic sanitation.[1] Every year, 3.5 million people die from diseases and viruses transmitted through untreated water.[2]

In the face of climate change, sustainable water management practices are even more urgent as the quality and availability of water resources become increasingly fraught. Recognising these high stakes, world leaders have committed to "ensure availability and sustainable management of water and sanitation for all" (SDG 6) by 2030 as part of the 2030 Agenda for Sustainable Development.

Yet, corruption in water management is a major obstacle to this goal, 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 the reliable supply of irrigation, or fuelling large-scale water pollution in many countries,[3] all of which complicate efforts to mitigate and adapt to climate change.[4]

Corruption in water management has a devastating 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 area of irrigated land in any country,[5] agriculture constitutes an astonishing 92.6 per cent of the country's annual national water footprint.[6] Globally, irrigated land helps produce 40 per cent of the world's food.[7] The Food and Agriculture Organization of the UN (FOA) estimates that almost 70 per cent of all water withdrawals worldwide are for farming, and that by 2050 demand for food is expected to grow by more than 50 per cent.[8]

Yet irrigation systems can be captured by the rich and powerful for their own benefits. Spillages, leakages and bad water treatment can lead to water shortages or make irrigation water toxic and dangerous for agriculture. These situations may 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.[9]

Women and the poor are often disproportionally affected by water scarcity as they tend to live in areas not connected to the water table. In many developing countries, women and girls often walk long distances to access water in the dry season, while about 80 per cent of health problems can be linked to inadequate water and sanitation.[10] Yet, resources allocated to water management can be stolen or diverted, undermining the quality and quantity of infrastructure intended to deliver water and transport human waste. The opportunity costs of such an insufficient water supply are especially high for women.[11]

Beyond its effect on human development, corruption in water management has a devastating impact on environmental integrity, which is of particular concern in the face of climate change. Corruption facilitates activities like illegal logging or illegal mining that lead to water overuse, pollution and the degradation of fragile water-based ecosystems, with a long-term impact on environmental sustainability. Climate adaptation initiatives, such as building flood defences and facilities to use scarce water resources more efficiently, also offer ample room for corruption. For example, in Bangladesh a number of officials were arrested for corruption in the construction of wetlands' embankments.[12]

Corruption also results in faulty infrastructure and low-quality water treatment. This increases risks of leakage of human waste and infiltration of pollutants into the soil, creating chemical imbalances that threaten freshwater ecosystems, put species at risk of disappearing and jeopardise potable water supplies.[13] This is exacerbated by corruption, while the lack of control in the management of industrial discharge has also been identified as a major source of water pollution, for example, in the garment industry in Bangladesh.[14]

As such, corruption is an enabling factor in the environmental degradation which exacerbates the looming global water crisis; by 2025 it is estimated that more than 3 billion people will be living in water-stressed countries.[15]

KEY ISSUES AND CHALLENGES

A number of factors make water management particularly vulnerable to corruption. Growing water scarcity due to climate change, population growth, urban sprawl and economic development raises the stakes in the water sector and thereby exacerbates the integrity risks.

Water management also typically involves large-scale infrastructure projects, such as dams, that are technically complex, capital intensive and difficult to monitor, and involve a small number of actors and providers with sweeping discretionary power. Indeed, the technical complexity of the sector makes it difficult for civil society to meaningfully participate in decision making, monitoring and oversight.[16] In addition, water resources increasingly become a security issue in many countries and such large projects are perceived to be of high strategic and security value.[17] In this context, civil society operates in a restricted space, which limits further its opportunities to provide oversight. In some countries, protestors of these mega-projects are quashed by the state security forces, where 2016 saw a record number of land and water rights defenders killed.[18]

As with other public services, corruption can occur at all stages of the water supply chain, from policy formulation to the management of organisational resources and to the point of service delivery.

Figure 4: Analysis of corruption along the drinking water and sanitation sector value chain

POLICY MAKING

Political mismanagement of municipality utilities to win votes with low tariffs; political capture of big projects and subsidies by big land users

ORGANISATIONAL RESOURCES

PERSONNEL

Nepotism and kickbacks in the appointment and promotion to lucrative positions

BUDGET

Embezzlement of government and foreign aid funds and assets; misuse of funds and assets; misuse of funds for water resources management, including river bank protection and flood protection works and flood emergency funds

SUPPLIES/GOODS

Collusion during the quality control of construction and rehabilitation of water infrastructure works; bribery and nepotism in assigning water rights and irragation turns; corruption in sector water use rights (including ground water); bribery for allowing informal ground water extraction; bribery and cover up of environmental impacts of projects or industry; officials profiting from giving 'licenses' to informal water providers; bribery related to the awarding of licenses for waste water discharges that pollute open water

PROCUREMENT

Collusion (kickbacks or bid-rigging) and extortion in the procurement procedures for construction and maintenance works; unwarranted contract variations and re-negotiations; capture of profitable contracts and (re)negotiations by private companies for water concessions

SERVICE DELIVERY/CLIENT INTERFACE

Bribery of utility officials to evade water fee payments or allow illegal connections; central and/or local level elite capture water provision services and committees

Source: Transparency International. 2017.
Monitoring corruption and anti-corruption in the SDGs: A resource guide

Forms of corruption in water and sanitation delivery

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. 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.[19] 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 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. Bribery, collusion or bid rigging in the water sector are widespread in both the developed and developing countries, and involve both international and national actors.[20] A well-documented example of corruption in the water sector occurred in the Lesotho Highlands Water Project, where the chief executive of the project was found guilty of taking US$6 million in bribes from 12 multinational construction firms and consortiums and sentenced 15 years in prison in 2002.[21]

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 contact, change infrastructure locations or use substandard material and equipment to cut costs and maximise the profitability. Beyond the negative impact on the quality and sustainability of the physical infrastructure, these kinds of corruption risks can cripple a project's economic viability.

The process of conducting environmental impact assessments (EIAs) to ensure that such large-scale projects will have minimal disruptive impact on local ecosystems and communities can also be corrupted. In India, for example, EIAs are commissioned to private consultants and funded by the very companies seeking licences. In the mining sector (which also impacts the water table), this has meant that fewer than 3 per cent of EIA applications are refused.[22] "Prior and informed consent" mechanisms, by which local communities are supposed to agree to an infrastructure project, can also be manipulated and communities offered cash, jobs or other benefits to agree to the project.

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, there are fewer opportunities for interaction between service providers and users than for other public services such as health and education. However, even if less visible, there are still opportunities for corruption at the point of service delivery.

There are relatively few agents responsible for delivering water to ordinary citizens, households and companies. In some countries, 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.

In some water-scarce countries, there are not always water connections in urban areas and various private providers (sometimes subsidised by the state) will deliver water via trucks to slum-dwellers. In such contexts, the interaction with service providers is as direct as for health and education services and often involves cash changing hands in exchange for water. There are well-documented cases of corruption scandals in New Delhi where basically a water mafia in league with local politicians and slum lords are at work.[23]

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 waste water produced by industry. Companies and individuals may 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 may also be bribed to turn a blind eye to substandard materials and equipment.

Challenges for addressing corruption in water and sanitation

Water is becoming an increasingly scarce resource, with intensified competition over access to and control over water supplies.[24] In addition, private investment in water is growing in countries with high risks of corruption, weak governance and institutions, posing particular challenges for international investors.[25] State-owned water and sanitation companies have often been shown to face many problems, such as overstaffing, high levels of unaccounted for water, lack of funds for investment and political interference in all areas.[26] Therefore, privatisation of water has been an option that was often posited as a "solution" to corruption in the 1990s, yet private investment in the water sector has had mixed results. On the one hand, it can play an important role in infrastructure financing, development and management, ensuring water supplies where the public sector cannot deliver.[27] On the other hand, it also brings major challenges to local populations. The Global South's water resources are increasingly owned and managed by Northern water firms who do not hesitate to turn off the tap if bills are not paid. In South Africa in 2002, for want of a $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.[28]

Inadequate or complex institutional arrangements, weak environmental protection frameworks and the lack of adequate sanctions for environmental degradation all combine to leave corrupt actors plenty of room for manoeuvre.[29]

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. Watercourses are not confined to national borders, and differing governance arrangements in countries sharing the same water body can lead to regulatory loopholes that can be exploited for corrupt purposes.[30]

Water management is also mostly considered to be a technical issue and an engineering challenge in most countries, with little attention paid to corruption and its impact on the political and social dimensions of water management.[31] Faults in the delivery and quality of water and sanitation services are usually ignored until emergencies arise, at which point repair or improvement of these systems may be too late or too costly.[32]

In spite of its impact on human development and environment 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 too. Nevertheless, clean-up costs are pricey, and the lasting environmental impact of corruption passes the bill to future generations.

APPROACHES TO ADDRESS CORRUPTION IN WATER AND SANITATION

Scaling up diagnosis of corruption in water

While awareness of corruption challenges in water has increased in recent years, more systematic research need 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.[33]

BOX 9: ANNOTATED WATER INTEGRITY SCAN (AWIS)[34]

The Water Integrity Network developed AWIS as a participatory and qualitative tool to assess integrity levels in specific sub-sectors of the water sector. It consists of a one-day multi-stakeholder workshop to assess integrity risks, identify priority areas for action and raise awareness about the water integrity situation. AWIS aims to improve integrity by facilitating constructive dialogue between different water sector stakeholders on issues related to transparency, accountability and participation as well as the existing anti-corruption framework and anti-corruption measures. AWIS does not measure corruption directly but rather sheds light on systemic weaknesses in the governance framework, which leave the water sector vulnerable to corruption. So far, AWIS has been applied to the context of urban and rural water supply and sanitation, but it can be easily adapted for use in other sub-sectors, such as water resource management, irrigation or hydropower.

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.[35]

As monitoring and oversight mechanisms are key to ensure the enforcement of regulations, monitoring and oversight activities conducted by various institutions, such as the central audit agency, parliament, anti-corruption agency, ombudsman, complaint offices and specific sector and local government organisations, need to be robust.[36] 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 the effective implementation of regulations.

Separating policy making and regulatory functions from the operational (provision) function has also been promoted as one approach to improving accountability and strengthening regulatory oversight in the sector and implemented in countries such as South Africa and Kenya. However, this approach is likely to effectively increase accountability only where and if the regulatory function is properly performed.[37]

Though this may involve investing in equipment and technology, monitoring mechanisms should also go beyond auditing of accounts and agent performance, and include monitoring of the water quality at each stage of the water cycle. 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. Citizens and scientists can fill the gap in countries where governments lack the capacity to regularly monitor the water quality.[38]

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.[39, 40]

Promoting fair and transparent competition for water contracts

Preventing corruption in the water sector also involves improving financial and procurement rules, including enforcing stricter standards, coherent rules and increased supervision of disbursements, competitive bidding and contract implementation. Different tools exist to curb collusion and bid rigging in tender procedures. 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 minimise interactions between public officials and bidding companies and pre-empts the development of corrupt networks.

Tendering companies can also 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.[41]

Integrity pacts have also been used in some water projects, such as the Greater Karachi Water Supply Scheme in Pakistan, 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.[42] Such commitments can be monitored by civil society organisations or other independent parties. Bidders are also required to disclose all commissions paid to contractors.

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 citizens participation, and they can use ICT to monitor and report problems and issues related to water and sanitation services. The Mobile for Water (M4W) Programme[43] in Uganda allows citizens to use text messages to report faulty pumps or other problems with the water supply, which then gets sent directly to the responsible mechanic. However, these programmes only work if complaints are leading to improvements, as can be seen with the crowdsourcing platforms used in Daraja, Tanzania, which provided citizens with digital platforms from which to complain about the lack of access to water or to report problems to engineers responsible for maintenance,[44] but citizens did not get positive responses from the authorities.[45] These platforms contributed to reorient government water policy and increase maintenance and infrastructure budgets consistently for five years.

Promoting transparency and participation

Meaningful citizens' participation in water governance can increase accountability and transparency and contribute to building trust and confidence. Communities can be involved 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.

Citizens can also contribute to water pollution mapping and performance monitoring of water utilities,[46] which has been proven successful in many places but also faces pushback by lawmakers.[47] Project budgets can be open to scrutiny, and water users can participate in decision making through public hearings involving citizens, regulators and water sector officials, 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.[48]

RESOURCES ON CORRUPTION IN WATER AND SANITATION SERVICES

BACKGROUND PAPERS AND CASE STUDIES

Water Integrity Network. 2016. *Water Integrity Global Outlook. 266p.*

http://cen.acs.org/articles/93/i36/Citizen-Science-Faces-Pushback.html

This report gives a comprehensive overview of the integrity challenges in the water sector. Using country examples, it examines the strengths and weaknesses of the water sector, and shows that the sector needs openness and citizen involvement. The report also provides examples of innovative programmes and projects and demonstrates tools and techniques that can be used to improve integrity in the water sector.

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) 14 p.**

http://www.u4.no/publications/mainstreaming-anti-corruption-initiatives-development-of-a-water-sector-strategy-in-mozambique/

Sectoral approaches to combatting corruption have gained momentum in recent years, yet the strategic prioritisation of sector anti-corruption initiatives is still the exception. 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 the sector. 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. Sectoral strategies need strong political commitment, at sector and central government levels, since multi-stakeholder processes are complex and time consuming, and the implementation of sector strategies must include sector-level human resources and management systems.

Aled Williams, Gulnaz Isabekova, Kubanychbek Ormuchev, Toktobek Omokeev and Natalai Zakharchenko. 2013. *Leaking Projects: Corruption and Local Water Management in Kyrgyzstan.* **Bergen: Chr. Michelsen Institute (U4 Practice Insight no. 2013:3) 8 p.**

http://www.u4.no/publications/leaking-projects-corruption-and-local-water-management-in-kyrgyzstan/

Poor water infrastructure in Kyrgyzstan from the Soviet era led international donors to support investments in agricultural irrigation and potable freshwater systems. The financial investments made, however, did not always underpin improvements in local water delivery. This U4 Practice Insight contrasts two project approaches to local water management in Kyrgyzstan from an anti-corruption perspective, including agricultural irrigation projects involving water user associations (WUAs) and a large-scale potable freshwater project entitled Taza Suu, which did not involve WUAs. It examines the extent to which project goals were affected by issues of corruption and fraud, and identifies lessons for future donor engagement in the country's local water sector. These include the need for paying greater attention to the local political economy, for greater transparency and clarity of bidding procedures and the requirements for entering the tender process, for more stringent monitoring and evaluation procedures involving multiple stakeholders, and for improving the quality of the technical assessments used to establish baselines for some WUA projects. Further research into the governance characteristics underpinning the most effective WUA projects should be conducted.

OECD. 2011. *Water Governance in OECD Countries: A Multi-Level Approach.*

http://www.oecd-ilibrary.org/environment/water-governance-in-oecd-countries_9789264119284-en

This report addresses multilevel governance challenges in water policy implementation and identifies good practices for coordinating water policy across ministries, between levels of government and across local actors at the sub-national level. Based on a methodological framework, it assesses the main "coordination gaps" in terms of policy making, financing, information, accountability, objectives and capacity building, and provides a platform of existing governance mechanisms to bridge them. Based on an extensive survey on water governance, the report provides a comprehensive institutional mapping of roles and responsibilities in water policy making at national and sub-national levels in 17 OECD countries. It concludes on preliminary multilevel governance guidelines for integrated water policy and recommendations for practitioners and researchers involved in water and sanitation sector governance.

Maria Gon alez de Asís, Donal O'Leary; Per Ljung And John Butterworth. 2010. *Improving Transparency, Integrity and Accountability in Water Supply and Sanitation. Washington D.C.: The World Bank. 200pp.*

https://www.oecd.org/env/outreach/44475062.pdf

This manual, which was developed under the Open and Participatory Government Program at the municipal level (Gap Municipal Programme), argues that tackling corruption in municipal water supply and sanitation services requires a holistic approach, focusing on governance reform and particularly on developing and implementing anti-corruption strategies at the sectoral and institutional levels. The manual consists of five modules analysing the nature of corruption in the sector, investigative tools to determine the extent of corruption, tools to address corruption, as well as case studies and information on the creation and implementation of action plans.

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/

The water "business" involves large numbers of consumers using water in different ways including households, industries and farms. Management of water at the user level, and the associated collection of charges or fees, carries a potential corruption risk. 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 can help prevent petty corruption. The related losses of revenue and harm to consumer confidence can seriously threaten the financial sustainability and viability of service providers. This article 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 pp.

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, such as separating the provision and regulatory roles, decentralisation and seeking alternative institutional options for the provision of water services, including corporatisation and privatisation, and provides 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 could potentially open space for corrupt practices and how donors can minimise or prevent these risks. In particular, the authors argue that while using aid modalities such as direct budget support and sector budget support is in line with the Paris Declaration, these modalities presuppose a partnership based on efficiency, transparency, honesty and good governance, with minimal corruption.

John Butterworth. 2009. *Grand Designs: Corruption Risks in Major Water Infrastructure Projects.* **Bergen: Chr. Michelsen Institute (U4 Brief 2009:27).**

http://www.u4.no/publications/grand-designs-corruption-risks-in-major-water-infrastructure-projects/downloadasset/163

From dams and dykes to urban sanitation systems, the article provides a detailed introduction to corruption in water sector infrastructure and outlines the areas vulnerable to corruption in water infrastructure. The author provides a case study of the Lesotho Highlands Water Project, a landmark case which showed the vulnerability of donor-backed trans-boundary water projects. The article concludes by offering advice to donors and practitioners to establish transparent and accountable procurement processes and management systems in major infrastructure projects.

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. The report shows that corruption is a cause and catalyst for the current water crisis, which is likely to be further exacerbated by climate change. Corruption affects all aspects of the water sector, from water resource management to drinking water services, irrigation and hydropower. 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. Each chapter focuses on the nature of the manifestations of corruption in these sectors and case studies. A final chapter is dedicated to policy lessons to combat corruption in the water sector.

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-anti-corruption-approaches-work-for-the-poor-issues-for-consideration-in-the-development-of-pro-poor-anti-corruption-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 how this could look. 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. This involves getting to know the nature of corruption in water as it affects the poor by disaggregating the types of corruption involving the poor, identifying corrupt practices and opportunities on the value chain, identifying key actors and their incentives in transactions involving the poor (and including the poor in this stakeholder analysis), integrating the poor into macro and institutional reforms and targeting anti-corruption interventions on the poor, among others. This paper concludes by emphasising the importance of pro-poor anti-corruption approaches for the water sector and stresses the need to develop an understanding of the poor and their "water world". Creating islands of excellence at the project, community and local government levels are key starting points for sector action, and a focus on areas and processes (such as commu¬nity management) where the poor are directly affected, all create the shift that is more likely to bring about pro-poor impacts.

Janelle Plummer and Piers Cross. 2006. *Tackling Corruption in the Water and Sanitation Sector in Africa.*

http://www.wsp.org/sites/wsp.org/files/publications/712200782528_Tackling_Corruption_in_the_Water_and_Sanitation_Sector_in_Africa.pdf

This article looks at tackling corruption in the water sector in Africa. The authors start by evaluating the scope of the problem, providing insight into how different methodologies for diagnoses can be used by practitioners to understand corruption challenges. The article then considers potential anti-corruption strategies to address the different types of water sector corruption in an integrated manner. The authors conclude on a somewhat sombre note by addressing the challenges of fighting corruption in the water sector in Africa and looking at what has been learned so far.

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 practical 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: i) legal and financial reform; ii) reform on public service delivery systems; iii) reform in the private sector; and iv) public awareness and capacity building. It concludes by providing a set of recommendations to guide practitioners' actions.

STANDARDS AND GUIDELINES

Dublin Statement on Water and Sustainable Development (1992).

http://www.un-documents.net/h2o-dub.htm

This statement provides a guideline for basic water governance directed at UN members. The statement recognises the problems surrounding water sustainability and supports the actions of member states in establishing participatory, integrated water management systems. It represents one of the first multi-country memoranda on the importance of integrity in water management and development surrounding water issues.

SADC Shared Watercourse Protocol.

http://www.internationalwaterlaw.org/documents/regionaldocs/Revised-SADC-SharedWatercourse-Protocol-2000.pdf

Considered by the Water Governance Facility (WGF) to be a groundbreaking agreement in water sustainability networks, the SADC Shared Watercourse Protocol of 1995 (revised in 2000) is the commitment of 14 southern African governments to implement a shared water management system. The protocol essentially provides a framework to confront water scarcity and water conflict and provides a guideline for dialogue on trans-boundary water issues.

OECD. 2015. *OECD Principles on Water Governance.*

http://www.oecd.org/cfe/regional-policy/OECD-Principles-on-Water-Governance-brochure.pdf

The OECD Water Governance Principles provide 12 must-dos for governments to design and implement effective, efficient and inclusive water policies in shared responsibility with a broad range of stakeholders. They were developed using a multi-stakeholder approach within the OECD Water Governance Initiative, and backed by ministers at the OECD Ministerial Council Meeting on 4 June 2015. The principles have been endorsed by 42 countries and 140+ major stakeholder groups. The first 65 signatures from public, private and non-profit organisations were gathered through the Daegu Declaration.

PRACTICAL INSIGHTS: HANDBOOKS AND TOOLKITS

Water Governance Facility. 2017. *WGF Report 6: 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. Although still too early to assess the long-term impact of these training initiatives, the report draws some lessons from capacity develop¬ment for water integrity to date. Capacity development should be treated as a process cycle, starting with assessing the current situation, planning, implementing and above all following up and supporting the intended new capa-bilities and behaviours. The success of capacity development initiatives also relies to a large extent on their ability to be relevant and to respond to the capacity needs of the target group, and to understand the political and institutional context. Finally, it is important to sustain capacity development over time, including train¬ing, but also putting greater emphasis on the institutional and societal enabling environment to promote water integrity.

UNDP-SIWI Water Governance Facility & UNICEF. 2015. *WASH and Accountability: A Reference Guide for Programming. Accountability for Sustainability Partnership: UNDP-SIWI Water Governance Facility and UNICEF. Stockholm and New York: SIWI and UNICEF.*

http://watergovernance.org/wp-content/uploads/2016/09/2015-UNICEF-Reference-Guide-ENG-digital-160927.pdf

This reference guide for programming contains guidance on existing mechanisms promoting accountability, illustrated by examples of how they are currently being operationalised in different contexts. The aim of the document is to provide external support agencies with structured and concise information that can help programming support to accountability-related actions.

OECD Water Governance Initiative. 2014. *OECD Inventory: Existing Tools, Practices and Guidelines to Foster Governance in the Water Sector.*

http://www.oecd.org/cfe/regional-policy/Inventory.pdf

This collection shows which tools, practices and guidelines exist to foster governance in the water sector up to 2014.

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, integrity in integrated water resources management.

Global Water Partnership (GWP) and the International Network of Basin Organisations (INBO). 2009. *A Handbook for Integrated Water Resources Management in Basins.*

http://www.inbo-news.org/IMG/pdf/GWP-INBOHandbookForIWRMinBasins.pdf

Many countries are introducing an integrated approach to water resources management at the national and basin level. This handbook provides guidance for improving the governance of freshwater resources with a particular focus on effective implementation of the integrated water resources management

(IWRM) approach in lake, river and aquifer basins. Targeted at basin managers and government officials and non-governmental actors who are involved in basin activities, it provides guidance for integrated water resources management that can be applied in basins regardless of the context (developed or developing countries, humid or arid conditions) or the current state of water governance. In particular, the handbook: i) articulates the links between challenges and IWRM responses; ii) suggests ways of setting up or modernising basin organisations to facilitate the adoption of the IWRM approach; and iii) is practical and user-friendly with many examples of experiences in river, lake and aquifer management.

ASSESSMENT TOOLS AND DATABASES

Transparency International. 2017. *Monitoring Corruption and Anti-Corruption 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 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.

OECD Water Governance Initiative. 2015. *OECD Inventory: Water Governance Indicators and Measurement Frameworks. 44p.*

http://www.oecd.org/cfe/regional-policy/Inventory_ Indicators.pdf

This collection shows which indicators and measurements exist to foster governance in the water sector up to 2015.

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.

Water Governance Facility. 2013. *Mapping Integrity of Water Resource Management and Relevant Capacities in Latin America.*

http://www.watergovernance.org/documents/WGF/Reports/WaterIntegrityMappingofLatinAmerica-ENG-Final.pdf

This report by the WGF is a mapping exercise of integrity of water management in Latin America that can be adapted for other regions and places. The report provides a flexible methodology to assess how current water management systems operate and to assess their internal governance. While Latin America is a large region with different climates and with differing water management systems, the report makes a point of saying that the information within it can be translated to other regions, and that the advice they provide for practitioners is applicable on a global scale.

RESOURCES FROM THE ANTI-CORRUPTION HELPDESK

Marie Chêne. 2009. *Good Practice in Addressing Corruption in Water Resource Management Projects.* U4 Helpdesk Answer.

http://www.u4.no/publications/good-practice-in-addressing-corruption-in-water-resource-management-projects/

Specific characteristics of water resource management (WRM) make this sector especially vulnerable to corruption. All major forms of corruption are prevalent in the WRM sector, including grand corruption, high-risk procurement, state and regulatory capture and the mismanagement of public resources. Measures to address corruption risks in WRM projects include addressing the sector's diffuse governance system, strengthening institutional arrangements as well as monitoring and oversight mechanisms, and cleaning up procurement processes with the support of awareness raising and capacity building interventions. Transparency and participation are guiding principles for all water governance interventions, with the view to promoting citizen participation through open access to regulatory decisions, information disclosure, public hearing, and the introduction of effective complaint mechanisms and whistleblowing protection.

SELECTED ACTORS AND STAKEHOLDERS

IRC International Water and Sanitation Centre.

http://www.ircwash.org

A self-described "think and do"-tank, IRC International Water and Sanitation Centre is a global advocate for accessible and sustainable water, sanitation and hygiene services. IRC works with governments, international organisations and other NGOs to address governance issues related to the water sector. The organisation has several projects in different parts of the world aimed at increasing community involvement in water governance.

International Rivers.

http://www.internationalrivers.org

International Rivers is a non-profit organisation that advocates for healthy, sustainable river systems and promotes control and monitoring of hydroelectric infrastructure projects. International Rivers has launched several local-oriented campaigns focused on awareness of environmental and social impacts of dams and has worked together with the World Commission on Dams to put hydroelectric procurement and decision standards on the agenda of large infrastructure donors like the World Bank.

Water Integrity Network.

http://www.waterintegritynetwork.net/

WIN was founded by IRC, SIWI, Swedish Water House, Transparency International and the World Bank Water and Sanitation Programme in 2006 to respond to increasing concerns among water and anti-corruption stakeholders regarding the impact of corruption in the water sector. The network, through its partner organisations, advocates for a greater focus on issues of transparency and accountability in the water and sanitation sectors. WIN has produced a number of studies about the impact of corruption in these sectors. The network also promotes individual awareness raising and company codes of conduct to deter corruption in the water sector.

Water Governance Facility.

http://www.watergovernance.org/

The Water Governance Facility (WGF) is a partnership between UNDP and Stockholm International Water Institute (SIWI) established in 2005, with the support of the Swedish International Development Cooperation Agency (Sida), serving to strengthen UNDP's capacity to provide relevant policy support and advice to countries, and to build the knowledge and capacities for improved water governance within governments and civil society as well as among UN agencies. It implements parts of the UNDP Water and Ocean Governance Programme by encouraging and coordinating water governance support for low- and middle-income economies. The goal is for these countries to achieve socially equitable, environmentally sustainable and economically efficient water governance policies. It runs programmes like the Shared Water Partnership, the GoAL WaSH Programme, the Water Integrity Programme, and the Accountability for Sustainability programme, each espousing a different process for advocacy and change but all of them focused on increasing water governance.

Stockholm International Water Institute.

http://www.siwi.org/

This Swedish think-tank and advocate for water governance and sustainability has worked closely with the UNDP and other water advocates, especially within the Water Integrity Network. This organisation has published several reports on various topics related to water sector governance and has also published a number of region- and nation-specific case studies.

END NOTES

1. WHO and UNICEF. 2017. Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. https://washdata.org/report/jmp-2017-report-final

2. WHO. 2002. WHO World Water Day Report. http://www.who.int/water_sanitation_health/takingcharge.html

3. Corruption in water is a problem throughout the world. A forthcoming report by the Water Crimes Project shows that corruption in the water sector is a high frequency and high impact crime type within Europe. http://www.watercrimes.eu/

4. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

5. Indian National Congress (INC). 2012. 'Green Revolution: Making India Self-Sufficient in Food'. http://inc.in/In-Focus/252/Green-Revolution-Making-India-self-sufficient-in-food

6. Mekonnen, M.M. and Hoekstra, A.Y. 2011. 'National Water Footprint Accounts: The Green, Blue and Grey Water Footprint of Production and Consumption', Value of Water Research Report Series No. 50, (Delft) page 8. http://waterfootprint.org/media/downloads/Report50-NationalWaterFootprints-Vol1.pdf

7. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

8. FOA. No date. Water Scarcity – One of the Greatest Challenges of Our Time. http://www.fao.org/zhc/detail-events/en/c/880881/

9. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector; Water Integrity Network. 2011. Corruption Risks and Governance Challenges in the Irrigation Sector. http://www.waterintegritynetwork.net/?docs=6601

10. Transparency International 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

11. UNDP. 2010. Corruption, Accountability and Gender: Understanding the Connections. http://www.undp.org/content/dam/aplaws/publication/en/publications/womens-empowerment/corruption-accountability-and-gender-understanding-the-connection/Corruption-accountability-and-gender.pdf

12. http://www.theindependentbd.com/printversion/details/101872

13. WHO. 2002. World Health Report: Reducing Risks, Promoting Healthy Life. http://www.who.int/whr/2002/en/

14. http://www.waterintegritynetwork.net/2017/07/27/wastewater-management-garment-industry/

15. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

16. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

17. Houdret, A. 2004. Water As a Security Concern: Conflict of Cooperation? http://www.afes-press.de/pdf/Hague/Houdret_Water_Security.pdf

18. https://www.globalwitness.org/en-gb/campaigns/environmental-activists/defenders-earth/

19. Chêne, M. 2009. Good Practice in Addressing Corruption in Water Resource Management Projects.

20. Transparency International. 2009. Global Corruption Report: Corruption in the Water Sector.

21. UNDP. 2011. Fighting Corruption in the Water Sector: Methods, Tools and Good Practices. https://www.ircwash.org/resources/fighting-corruption-water-sector-methods-tools-and-good-practices

22. Human Rights Watch. 2012: Out of Control: Mining Regulatory Failure, and Human Rights in India p9. https://www.hrw.org/report/2012/06/14/out-control/mining-regulatory-failure-and-human-rights-india

23. BBC. 2015. Water Mafia: Why Delhi is Buying Water on the Black Market. http://www.bbc.com/news/world-asia-india-33671836; Sethi, A. 2015, At the Mercy of the Water Mafia. https://foreignpolicy.com/2015/07/17/at-the-mercy-of-the-water-mafia-india-delhi-tanker-gang-scarcity/

24. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

25. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector.. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

26. Berg. 2013. Best Practices in Regulating State-owned and Municipal Water Utilities. ECLAC. http://repositorio.cepal.org/bitstream/handle/11362/4079/1/S2013252_en.pdf

27. http://www.waterintegritynetwork.net/wigo/special-topics/private-space-in-public-water/

28. Goldman, M. 2007. 'How "Water for All!" Policy Became Hegemonic: The Power of the World Bank and its Transnational Policy Networks', Geoforum, 38 (5), pp 786-800. https://www.researchgate.net/publication/222173476_How_Water_for_All_policy_became_hegemonic_The_power_of_the_World_Bank_and_its_transnational_policy_networks

29. Chêne, M. 2009. Good Practice in Addressing Corruption in Water Resource Management Projects. http://www.u4.no/publications/good-practice-in-addressing-corruption-in-water-resource-management-projects/

30. Transparency International. 2008. Global Corruption report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

31. Allan, J. A. 2003. 'Integrated Water Resources Management is More a Political than a Technical Challenge', Developments in Water Science, vol. 50 (2003), pp 9–23
Ingram, H. 2008. 'Beyond Universal Remedies for Good Water Governance', The Sixth Biennial Rosenberg Water Policy Forum on Water for Food: Quantity and Quality in a Changing World – 24-27 June 2008, Zaragoza, Spain. www.zaragoza.es/contenidos/medioambiente/cajaAzul/IngramACC.pdf
Mukhtarov, F. and A. Cherp. 2015. 'The Hegemony of Integrated Water Resources Management as a Global Water Discourse', in V.R. Squire, H.M. Milner and K.A. Anne Daniell (eds), River Basin Management in the Twenty-First Century: Understanding People and Place, (New York)

32. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

33. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

34. WIN. 2011. Annotated Water Integrity Scans: A Manual to Help Assess Integrity Levels in Specific Sub-Sectors of the Water Sector. http://www.waterintegritynetwork.net/wp-content/uploads/2015/02/WIN_AWIS_Manual_EN_2011.pdf

35. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

36. UNDP. 2011. Fighting Corruption in the Water Sector: Methods, Tools and Good Practices. https://www.ircwash.org/resources/fighting-corruption-water-sector-methods-tools-and-good-practices

37. Butterworth & de la Harpe. 2009. Improving the Framework? Institutional Reform and Corruption in the Water Sector. http://www.u4.no/publications/improving-the-framework-institutional-reform-and-corruption-in-the-water-sector/

38. For more on monitoring and evaluation in the water sector see: Water Integrity Network. 2016. What Counts? Monitoring and Evaluating Water Integrity. http://www.waterintegritynetwork.net/wigo/chapters/what-counts-monitoring-and-evaluating-water-integrity/

39. Chêne, M. 2009 Good Practice in Addressing Corruption in Water Resource Management Projects. http://www.u4.no/publications/good-practice-in-addressing-corruption-in-water-resource-management-projects/

40. The Integrity Management Toolbox gives an overview of measures to address risks specific to water organisations. http://www.waterintegritynetwork.net/imtoolbox/

41. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector. https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

42. Transparency International Pakistan. Integrity pacts: A Pakistan Success Story. http://www.transparency.org.pk/documents/KW&SB.pdf

43. http://washinnovations.r4d.org/program/mobile-for-water-m4w

44. Schouten, T. 2012. ICT for Open Contracting in Fragile and Conflict-Affected States.

45. WIN. 2016. Water Integrity Global Outlook. http://www.waterintegritynetwork.net/?docs=4959

46. Transparency International. 2008. Global Corruption Report: Corruption in the Water Sector https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector

47. Gibb. 2015. Citizen Science Faces Pushback. http://cen.acs.org/articles/93/i36/Citizen-Science-Faces-Pushback.html

48. UNDP. 2011. Fighting Corruption in the Water Sector: Methods, Tools and Good Practices. https://www.ircwash.org/resources/fighting-corruption-water-sector-methods-tools-and-good-practices