

Guidance Note



Urban Water Supply Sector Risk Assessment



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Foreword

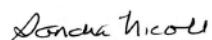
The Guidance Note: Urban Water Supply Sector Risk Assessment is part of a series of guidance notes for priority sectors and subsectors of the Asian Development Bank (ADB). A joint knowledge product of ADB's Governance and Water Communities of Practice, it offers a framework for mapping governance risks to inform the preparation of future country partnership strategies. Such a framework covers institutional aspects (policy, legal framework, and regulation); organizational aspects (planning, financial management, procurement, and human resources); and sector operations.

This guidance note also supplements ADB's *Guidelines for Implementing the Second Governance and Anticorruption Action Plan*. The purpose of the Second Governance and Anticorruption Action Plan is to improve ADB's performance in implementing the governance and anticorruption policies in the sectors and subsectors in which ADB is active, as well as to design and deliver better quality programs and projects.

A team from the Public Management, Governance, and Participation Division of the Regional and Sustainable Development Department initiated this guidance note. The team comprised Sandra Nicoll (director) and Brenda Katon (governance specialist, consultant). Portia Gonzales provided administrative support to the team.

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Abbreviations

- ADB – Asian Development Bank
- DMC – developing member country
- GACAP II – Second Governance and Anticorruption Action Plan

Introduction

Objectives. This sector guidance note seeks to increase awareness of risks that can reduce the benefits from operations in the urban water supply sector.¹ It is meant for Asian Development Bank (ADB) staff involved in commissioning and/or undertaking governance risk assessments as required under ADB's *Second Governance and Anticorruption Action Plan (GACAP II)*. Risk, in the context of GACAP II, refers to the risk of reduced development effectiveness—that the development objectives of developing member countries (DMCs) and ADB will not be met, or will be adversely affected by poor governance, weakly performing institutions, or vulnerability to corruption.² This guidance note aims to explain key sector features of urban water supply and identify entry points for mapping risks to development effectiveness in the sector. Generic risks are presented for illustrative purposes, and are not intended to be exhaustive.

This sector guidance note supplements ADB's *Guidelines for Implementing GACAP II*. It does not replace the guidelines. The guidelines provide a risk management framework and map out the process for assessing, managing, and monitoring risks. This note is meant to help staff in tailoring the generic sector risk assessment terms of reference found in the guidelines (Appendix 4), to consider risk vulnerabilities specific to the urban water supply sector.

Structure of the Guidance Note. Section II describes the key features of the urban water supply sector. Section III outlines sector risks that include GACAP II priorities of public financial management, procurement, and combating corruption. These priorities can be assessed within frameworks of (i) institutional features (policy, legal framework, and regulation); (ii) organizational aspects (planning, financial management, procurement, and human resources); and (iii) sector operations (water harvesting and storage, water treatment, distribution, and customer interface).

This sector guidance note seeks to increase awareness of risks that can reduce the benefits from operations in the urban water supply sector

¹ Inputs to this guidance note came from the members of the Governance Community of Practice and the Water Community of Practice of the Asian Development Bank (ADB). Rural water is another water stream, which focuses on investments to improve health and livelihoods in rural communities. It calls for a separate guidance note, given a different group of users among ADB staff.

² ADB. 2008. *Guidelines for Implementing ADB's GACAP II*. Manila. www.adb.org/Documents/Guidelines/GACAP-II-Guidelines.pdf

Key Features of the Sector

Water is a critical resource in the lives of people who both benefit from its use and who are harmed by its misuse and unpredictability

Functions

The water supply sector is at the core of economic growth and social well-being. Water is indispensable to human survival. It is a quencher of thirst, a generator of power, a grower of crops, and a basic natural resource for daily existence. Without water, there can be no hydropower, no agriculture, and no cities.³ Inadequate access to clean water, combined with the lack of basic sanitation, hampers development. In some countries, water service quality may be low, service providers' financial capacity to deliver may be under threat, and some segments of the population may not receive service at all. Piped water may be intermittent and, when available, may be unsafe for drinking. Thus, increasing access to safe water supply is a major sector goal. It is also a Millennium Development Goal, which aims to halve, by 2015, the proportion of the population without sustainable access to safe drinking water.⁴ For poor households, access to water helps generate income and savings to exit poverty, mainly by releasing lengthy hours for fetching water to other productive activities. Water is paramount to inclusive economic growth, food security, and sustainable development.

Water is a critical resource in the lives of people who both benefit from its use and who are harmed by its misuse and unpredictability (flooding, droughts, salinity, acidity, and degraded quality). Water is a finite and vulnerable resource. Consequently, a water crisis puts lives and livelihoods at risk because water has no substitute.⁵ The crisis of governance in water is associated with the misuse of authority over water and how countries manage their water resources. Poor financial management, weak accountability, and weak capacity are some issues associated with poor governance in the water sector, along with lack of transparency and stakeholder participation in sector decision making.

Urban water concentrates on sustaining economic growth in cities through investments in water supply, sanitation and wastewater management, and environmental improvement. The value chain for delivering urban water services comprises four stages: (i) water harvesting and storage (tapping water sources and storing water in reservoirs and other similar structures); (ii) water treatment (dealing

³ Water Integrity Network. 2008. *Advocating for Integrity in the Water Sector*. Berlin: Water Integrity Network. www.waterintegritynetwork.net

⁴ Although the world is ahead of schedule in meeting the 2015 drinking water target, 84 million people still relied on unimproved water sources for their drinking, cooking, bathing, and other domestic activities in 2006. Of these, 84% lived in rural areas. Only 27% of the rural population had water piped into their homes or onto their premises. Fifty percent of rural dwellers relied on other drinking water sources, such as public taps, hand pumps, improved dug wells or springs. The rest obtained their drinking water from lakes, rivers, dams, or from unprotected dug wells or springs. United Nations Development Programme. 2009. *The Millennium Development Goals Report 2009*. New York. www.undp.org

⁵ Transparency International. 2008. *Global Corruption Report 2008: Corruption in the Water Sector*. New York: Cambridge University Press. www.transparency.org

with water quality and safety); (iii) distribution (providing a network to supply water to end customers); and (iv) customer interface (connections, customer metering, billing, bill collection, and customer services). Water distribution may involve bulk water (supply of water from its original source in bulk to another supplier, which then distributes it to customers). Water may be distributed through (i) household connections, utility standpipes, and utility tanker supply; (ii) private water carriers; (iii) privately managed standpipes and kiosk networks; and (iv) community-managed organizations, among others. Customers can also choose to bypass the chain and tap their own water supply (e.g., private well, spring, rivers, and similar water bodies). This happens when reliability of supply from water utilities is inadequate or when the customer's location is too isolated to be connected to water distribution networks.

Institutional Features: Policy, Legal, and Regulatory Aspects

Sector Policy of ADB. Familiarity with ADB's sector policy is essential for ADB staff because it provides boundaries for potential actions and articulates sector goals. ADB's Water Policy (2001) covers assistance for water supply delivery, sanitation, irrigation and drainage, and is premised on the need to formulate and implement integrated, cross-sectoral approaches to water management and development.⁶ It has seven objectives: (i) promote a national focus on water sector reform, (ii) foster the integrated management of water resources, (iii) improve and expand the delivery of water services, (iv) foster the conservation of water and increase system efficiencies, (v) promote regional cooperation and increase the mutually beneficial use of shared water resources within and between countries, (vi) facilitate the exchange of water sector information and experience, and (vii) improve governance. Policy pronouncements that are specific to water supply underscore support for autonomous and accountable service providers, private sector participation, and public-private partnerships, with due emphasis on equity in access to water for the poor and underserved. In this light, legal and regulatory systems are vital for making water service providers and resource managers in DMCs accountable for their performance. The policy also supports upgrading existing systems to reduce unaccounted-for-water and nonrevenue water, increasing public awareness, and developing contracting modes that allow potential investors to participate in expanding and improving services. It also emphasizes capacity development for public, private, and nongovernment organizations active in the sector.

DMC Water Supply Policy. In general, water supply policies in ADB's DMCs aim to strengthen sector institutions to promote efficiency and conservation, expand access to reliable water supply, provide safe drinking water, and/or promote wastewater management. They may also decentralize responsibility for water supply services to local governments and community-based organizations, encourage private sector participation in service delivery, and increase cost recovery through user charges to cover capital investment requirements and to reduce the need for government subsidies. These DMC policies are typically supported by a hierarchy of legal frameworks, implementing rules, and regulations.

ADB's Water Policy (2001) covers assistance for water supply delivery, sanitation, irrigation and drainage, and is premised on the need to formulate and implement integrated, cross-sectoral approaches to water management and development

⁶ ADB. 2001. *Water for All: The Water Policy of the Asian Development Bank*. Manila. www.adb.org/Documents/Policies/Water/water.pdf

Legal Framework and Implementing Rules. The legal framework for the water supply sector includes several components: (i) the sector structure and institutions (who is responsible for various functions, e.g., division of responsibilities); (ii) water appropriation and use; and (iii) ecosystem protection. The legal framework tackles the administration of water resources through designated entities, and establishes basic principles relating to the ownership of waters as well as to the use, development, and protection of various water resources (e.g., groundwater such as aquifers; surface waters such as rivers, lakes, streams, and natural lagoons; and spring water). It may provide for issuance of water rights and permits; sanitary requirements for drinking water, household water and wastewater; control measures against water pollution; and protection of watersheds and related resources to maintain ecosystem balance. Details on how to enforce the legal framework are embodied in implementing rules.

Regulation. Water supply is an essential service, whose provision calls for the regulation of service providers, whether or not the provider is publicly or privately owned and operated. Regulation in the urban water supply sector has three dimensions: (i) technical, (ii) environmental, and (iii) economic. Technical regulation concerns service levels, technical standards, and performance (i.e., reliability and quality of water supply). Environmental regulation deals with water sources, disposal of wastewater, and ecosystem management. Economic regulation puts legal limits on service providers to control monopoly power. It aims to achieve good service for customers at a price that enables providers to operate efficiently and sustainably, consistent with a clear and reasonable tradeoff between service levels and tariffs. Core functions include setting, enforcing, and changing the maximum tariffs that service providers are allowed to charge and the service standards that they are required to provide.⁷ Other functions include controlling tariff structures, setting coverage targets, and/or ensuring that asset serviceability remains above specified levels. Regulation of privately owned utilities aims to strike a balance between providing utilities with the incentives to invest and earn a return on their investment and protecting the interests of other stakeholders.

Economic regulation can occur without a regulator.⁸ In such cases, the regulatory mechanism may involve a contract with a privately owned service provider (also known as regulation by contract), a process for decision making by a department or minister, or a performance contract/license with a publicly owned service provider. Thus, legal instruments and rules can be used to set regulatory parameters, and organizational arrangements defined to achieve functionally similar regulatory results. Ways to make regulatory rules legally enforceable include statutes (passed by a legislature), contracts, licenses, and executive orders.

A good regulatory system has several attributes: (i) coherence, (ii) predictability, (iii) independence, (iv) transparency, and (v) accountability. Coherence implies that the system is able to select and settle on the appropriate combination of tariffs and subsidies and service standards and coverage, such that investors are able to recover their costs, and customers receive the services they are willing to pay

⁷ David Ehrhardt, Eric Groom, Jonathan Halpern, and Seini O'Connor. 2007. *Economic Regulation of Urban Water and Sanitation Services*. Washington, DC: The World Bank. <http://go.worldbank.org/6BBBD572ZG0>

⁸ Eric Groom, Jonathan Halpern, and David Ehrhardt. 2006. *Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Services*. Washington, DC: The World Bank. <http://siteresources.worldbank.org/INTWSS/Resources/WSS6-final.pdf>

for. Predictability means that decisions are based on clear rules and precedents. If the rules are clear or predictable, providers may be willing to invest in new or improved water system infrastructure and services. Predictability minimizes risks to investors and, in turn, encourages efficient service provision, asset maintenance, and adequate capital investment. Independence implies that the regulator has a clear legal mandate, is autonomous in its finances and staffing, and is not beholden to others in its decision making. Transparency and accountability are essential for curbing corrupt practices.

Water supply, however, has a political dimension⁹ because it is considered a public good. Tariffs in other infrastructure sectors (e.g., electricity and telecommunications) are often not politicized to the same degree as in water supply. Unlike electricity utilities, water utilities can be gradually starved of resources without inducing a total collapse of service. Service quality can drop and still function, albeit poorly. Politicians may be reluctant to support cost recovery tariffs (essential for sourcing and servicing debt or repaying capital that has been invested) or efficiency targets that are necessary for sustainable service provision. Politicians who foresee political risks from tariff increases may try to hold down tariffs. In the long term, however, the financial viability and efficiency of the water utility will likely be eroded. Thus, complementary approaches may be needed to provide stability and predictability by limiting the amount of discretion that regulatory bodies have, and to reach out to customers through awareness campaigns and public hearings, along with other appropriate measures.

If the rules are clear or predictable, providers may be willing to invest in new or improved water system infrastructure and services

Organizational Features

Structure. Urban water utility structures vary, and may fall into the following types: (i) publicly owned and operated under a local government department, whose revenues are either mixed with other local government incomes or ring-fenced; (ii) corporatized, which has an independent identity and an oversight board that steers the performance of the utility;¹⁰ and (iii) with private sector participation in utility management and operation. Of these structures, publicly owned and corporatized utilities are predominant.

Where the private sector is involved, arrangements may take the form of (i) concession; (ii) management; (iii) affermage; (iv) lease; (v) build–operate–transfer or build–operate–and own; (vi) design–build–lease; and (vii) investor owned.¹¹ The

⁹ World Bank. No date. *Regulation*. Washington, DC. <http://go.worldbank.org/9N04BZEJAO>

¹⁰ The utility management is responsible for service provision within the board's approved guidelines. The term "corporatized utility" refers to two distinct legal forms: (i) statutory bodies and (ii) government-owned companies. Statutory bodies function under public law and enjoy autonomous corporate status under a special law or act drawn up specifically for the utility in question. Other common names are parastatals or statutory agencies. Government-owned companies are utilities that are incorporated under company law but the government retains ownership of the shares of the company. Other terms for government-owned companies include public enterprises and state-owned enterprises. These utilities are subject to the same high accounting and auditing standards as private companies, including an independent external audit.

¹¹ Jonathan Halpern, Charles Kenny, Eric Dickson, David Ehrhardt, and Chloe Oliver. 2008. *Deterring Corruption and Improving Governance in the Urban Water Supply and Sanitation Sector: A Sourcebook*. *Water Working Note* No. 18. Washington, DC: The World Bank. <http://go.worldbank.org/HCS82BJRE0>

Governance
will vary with
ownership and
contractual
arrangements

government usually establishes rules to determine the quality of the service to be provided, and the maximum price customers will pay for that service. These rules are often set out in the private participation contract (although they may be set by regulation), and administered by a government regulator. Governance will vary with ownership and contractual arrangements.¹²

- (i) **Concession**—The concessionaire is responsible for all aspects of service provision, planning, and financing of new capital investments. The contract is usually long term (over 25 years). At the end of the concession, ownership of the utility's assets (including any new capital investment) reverts to the government.
- (ii) **Management**—The private operator supplies management services to the utility, but has no ownership stake. The contract duration is typically 5 years.
- (iii) **Affermage**—The private operator is paid a fee to run the business and is responsible for employing staff and operating and maintaining the utility's assets.
- (iv) **Lease**—The private operator pays a lease fee for the right to run the business, operate and maintain the utility's assets, and collect revenue from customers. The contract is usually long term (10–20 years or longer). Major capital investment is a government responsibility. Assets remain in the public sector.
- (v) **Build–Operate–Transfer or Build–Operate–and Own**—The private sector constructs a specific infrastructure, such as a bulk supply reservoir or water treatment plant. It is usually responsible for all capital investment and owns the assets until transferred to the public sector. In build–operate–and own schemes, the private sector retains ownership.
- (vi) **Design–Build–Lease**—The private sector is engaged to design and construct the water system as well as to operate it under a lease arrangement.
- (vii) **Investor Owned**—Assets are transferred to the private sector through asset sales, share sales or management buyouts, or are privately operated at the outset. The private sector is responsible for all capital investment, maintenance, operations, and revenue collection.

Planning. Planning for water infrastructure often takes place within broader infrastructure planning processes of relevant state planning and infrastructure departments. In general, planning for water supply is anchored in water policy

¹² For example, penalties for failure to provide service are often not effective when applied to a public water utility. The net effect is that the public may suffer while the utility managers may remain unperturbed. Penalties applied to a private company may be more effective since it is the shareholders who suffer through reduced profits. Shareholders are motivated to ensure that utility managers deliver the required service. Concession contracts with private operators may strengthen provider autonomy and incentives for good performance, but a well-functioning regulatory regime is essential. The award and later renewal of the contract, however, may provide an opportunity for corruption. Under a management contract, the contractor does not take operating risk and may not have an incentive to prevent misappropriation of funds. In some affermage contracts, the operator's remuneration depends on the quantity of water produced rather than the water billed and revenue collected. Thus, incentives to reduce corruption in the area of commercial losses and collections may be lacking.

documents, and involves inputs from the relevant state department, local government, and major water providers. Where major water companies are responsible for constructing, managing, and operating water-related infrastructure, their role in planning is important. In areas of rapid growth, planning for new infrastructure includes the provision of water and wastewater infrastructure to service the population.

Basic to planning are (i) forecasting the demand for services based on valid assumptions about growth and customer base information (e.g., willingness to connect to services, willingness to pay for services, and preference for different service types); (ii) benchmarking performance of companies to reveal areas of weakness that require investment; and (iii) developing an expansion plan for satisfying demand. In some cases, the utility's weak capacity, lack of support from the utility's senior management, or opposition by vested interests who favor the status quo may hamper progress toward a more efficient system.

Water Management. Water management activities undertaken by the state occurs in a continuous cycle: (i) planning—the development of whole-of-catchment plans for allocation and sustainable resource management; (ii) water allocation—the allocation of entitlements to water users; (iii) management and compliance—activities to ensure that water is being shared and used according to the entitlements and water plans, where key functions include water resource accounting, administering water entitlements and licenses, and facilitating and administering water trading; (iv) monitoring—a range of water monitoring, water resource assessment, and information management activities are carried out to support water resource planning and management (e.g., reporting on progress against water plans, monitoring of ambient networks, stream gauging, water quality monitoring, and publication of water resource data; and (v) assessment—review of water plans and adoption of new or modified plans.

Financial Management. Financial sustainability of sector improvements and operations is a determinant of the provision of reliable and safe water supply. Financial discipline in the sector allows water utilities to produce cash surplus and expand, which is vital for meeting new investment requirements and for responding to rehabilitation needs. Weak financial management systems can pose risks to sector viability and sustainability. Structuring pricing and subsidies to meet social, economic, and/or technical objectives, promoting efficiency, strengthening the collection of payments, and enforcing accountability for performance are important challenges.

Procurement. Construction or civil works is a major aspect of water supply development and/or improvement. Where the water utility is government-operated, the typical procurement mode is that of a construction contract. The government engages a contractor to build, upgrade, or rehabilitate the water system from source development, to construction of water reservoirs and treatment plants, to installation of the transmission and distribution network. Usually, such a construction contract also includes the initial purchase of chemicals and other inputs, vehicles, and equipment. Where the private sector is engaged to operate the system (e.g., management, affermage, or lease arrangements, as defined on page 6), a separate procurement mode is applicable. The procurement contract defines responsibilities for asset maintenance and utility operations over a specific period.

Construction or civil works is a major aspect of water supply development and/or improvement

A management information system helps improve efficiency and manage outcomes

Procurement processes in urban water supply projects involve public actors (national and local government politicians, directors, engineers, operations staff, project managers, and procurement officers) and private actors (consultants, construction firms, and suppliers of goods). Procurement is subject to the requirements of government and development partners. Basic principles are transparent procurement, a level playing field, and award of contracts that represent the best value-for-money. Officials, bidders, and procurement agents, however, may find ways around rules to make illegal gains. Technical and commercial requirements may favor a particular bidder, confidentiality of suppliers' offers may be breached, the bidding process and contract execution may be opaque, and schedules may be unrealistic. Collusion may also occur among construction firms, project supervisors, and suppliers of inputs. Contractors or suppliers may try to cover the costs of corruption by providing substandard materials or workmanship, and/or bribe inspectors to obtain false certifications of quality and delivery.

Management Information System. A management information system supports the operations, management, and decision functions of water utilities. As such, activities associated with collecting, processing, storing, and disseminating information are important. Information supports decisions, decisions trigger actions, and actions affect the performance of the utility. A management information system helps improve efficiency and manage outcomes. As a minimum, such information system covers the following areas:

- (i) Financial Systems—Installation of computerized accounting and budgeting systems, computerized billing and collection system, financial projection modeling, and water demand forecasting.
- (ii) Production Systems—Facilitates water demand and supply analysis, identification of leaks and measurement of unbilled water, and planning and control of inventories.
- (iii) Human Resource Development—Includes employees records; skills inventory; job description database; and staffing per department, function, activity, and expertise.

Human Resources. Recruitment of human resources based on merit and competence is vital for efficient sector operations. Weak technical and managerial capacity hampers translation of decisions into effective management actions and delivery of envisaged development outcomes. Decentralization may place many local governments and local water providers in charge of service delivery, but they may not have the capacity to step up to their role. Ignoring local capacity and readiness for their role can invite inefficiency and corruption.

Political interference and conflict of interest may occur in the appointment and promotion of senior-level officials with decision-making authority. Bribes may also be paid for appointments, promotions, and transfers. Directorships in the water utility may be bought. Internal controls to ensure checks and balances are important measures to avoid potential conflicts of interest and weak accountability. Well-defined job descriptions, transparent processes, conduct of staff performance appraisals, functioning appeal mechanisms, and enforcement of policies against unethical behavior are examples of measures to promote integrity. Among others, managing the sector requires good governance, contract management, customer

orientation, and technical skills (e.g., asset management, financial management, and other related skills).

Stakeholders

Table 1 illustrates the diversity of stakeholders in the urban water supply sector at various levels. Examining the formal and informal power relationships between stakeholders can help determine where risks to sector performance lie. For example, political or vested interests may influence decision makers to favor sector investments that focus on large infrastructure (e.g., bulk water supply versus improving networks) because it provides opportunities for personal enrichment not afforded by smaller alternatives. Financial resource allocation may be politically influenced and may not be aligned with sector plans. Appointments to the water utility boards or senior management may be tainted by conflict of interest. Senior managers of the utilities may assign lucrative postings to compliant employees with the expectation of getting a share of their illegal earnings (from kickbacks by suppliers who are awarded procurement contracts, bribes from customers for speedy water connections and repairs, and bribes for concealing illegal connections). Contractors may bribe engineers and administrators to conceal substandard construction.

Stakeholder analysis is important in understanding sector governance. Sector governance tends to be more effective when there is (i) a demand for accountability from non-state stakeholders (e.g., customers, media, industry associations, nongovernment organizations, development partners, and investors) as well as from organizations concerned with checks and balances (e.g., judiciary, ombudsman, and audit offices); and (ii) a supply of governance, where actors in power share information, take decisions within a clearly defined regulatory framework and allocate resources transparently, offer space for participation, and are accountable for their actions.¹³

Financial resource allocation may be politically influenced and may not be aligned with sector plans

¹³ European Commission. 2008. *Analysing and Addressing Governance in Sector Operations*. Luxembourg. www.nilsboesen.dk/uploads/docs/Sector%20Governance2008.pdf

Table 1 Examples of Stakeholders in the Urban Water Supply Sector

Level	General Stakeholders	Specific Sector Stakeholders
National political leadership	Executive and legislative officials	
National ministries and agencies	Policy making and planning Finance Procurement Audit Anticorruption agency/ Ombudsman Judiciary Law enforcement agencies	Sector regulator
National line departments	Heads of line departments: Public works/infrastructure Environment Agriculture Health Urban development	Director (water department) Directors of other departments
Local political leadership (provincial, town, city)	Governors and mayors Other officials	
Water utilities and providers	Staff of government ministries and departments	Board members and managers of water utilities Utility procurement staff Utility engineers, technicians, supervisors, and other personnel Informal water providers
Suppliers of goods, services, and funds	International and local organizations	Construction companies and consultancy firms for water supply Suppliers of goods (chemicals, pipes, meters, and other hardware) Investors and development partners
Community	Village leaders Civil society (nongovernment organizations, media, etc.)	Water-related committees Water customers and customer associations

Source: Adapted from Plummer, Janelle and Piers Cross. 2007. Tackling Corruption in the Water and Sanitation Sector in Africa. In J. Edgardo Campos and Sanjay Pradhan, eds. *The Many Faces of Corruption*. Washington, DC: The World Bank.

Sector Risks

Understanding the Risk Environment and Identifying Risks. The urban water supply sector is vulnerable to risks due to several factors: (i) involvement of multiple institutions in water governance, (ii) capital intensity, (iii) large-scale procurement, (iv) interface between public and private sectors, (v) political pressure on tariffs, (vi) high demand for water services, (vii) water scarcity (and becoming more so due to population growth and resource depletion), (viii) dispersed service provision, and (ix) weak institutional capacity. Vulnerabilities exist in policy making, regulation, organizational management, and sector operations.¹⁴ The extent of risk and where these risks lie will differ under different sector structures. Reducing risks from poor governance and institutional weaknesses requires an understanding of where they occur, what arrangements sustain them, and which systems and stakeholders can be strengthened to create an effective, systemic movement toward accountability and integrity in the sector.

Vulnerabilities exist in policy making, regulation, organizational management, and sector operations

The sector has a characteristically fragmented institutional setup, manifested in a range of vertical and horizontal actors. It crosses government departments for environment, health, urban development, agriculture, and infrastructure. The existence of state and non-state actors and the diversity of arrangements for delivering water services contribute to a complex sector. Utilities, alternative providers, community management, and self-supply exist side by side. Funding sources for water sector projects, moreover, may be uncoordinated, and decision making and spending may be nontransparent. Political interference can be significant because water policy, planning, and budgeting decisions impact on inputs vital for agriculture, industry, and property. Patronage networks and patron–client relationships may shape interactions in the sector. As part of the high-risk construction sector, the water sector may exhibit resource allocation and procurement procedures that provide opportunities for rent seeking. Where water is scarce, customers may also compete to obtain as much water as possible, creating incentives to resort to corruption to obtain more than one’s fair share. Corruption is a key challenge. In poorly planned urban communities, the widely dispersed nature of water services contributes to the sector’s vulnerability to risks.

Sector performance indicators can provide first order signals on sector risks. These include (i) water supply coverage, (ii) nonrevenue water, (iii) water supply duration, (iv) cross subsidies, (v) collection ratio, (vi) staff per 1,000 connections, (vii) metered coverage, and (viii) cost recovery.¹⁵ These indicators may point to lack of investment in new capacity, weak financial management systems, inefficient business processes, poor sector oversight, and/or corruption. Low collection ratios can indicate a problem with the water utility’s commercial systems, or with an

¹⁴ For details on corrupt interactions, please refer to Plummer, Janelle and Piers Cross. 2007. Tackling Corruption in the Water and Sanitation Sector in Africa. In J. Edgardo Campos and Sanjay Pradhan, eds. *The Many Faces of Corruption*. Washington, DC: The World Bank.

¹⁵ Please refer to the glossary for a description of these terms.

Risks can be identified at various stages, and prioritized in terms of likelihood and seriousness

absence of water meters. The risk may be linked to capacity, or reluctance to use computerized systems, or it may be associated with corruption (for example, writing off debts, recording false payments, or failure to enforce collection, in exchange for side payments from customers). An adequate analysis of the situation is vital. Risks tend to be relatively more serious where lack of transparency is prevalent, accountability is absent, and decision making is discretionary. Risks can be identified at various stages, and prioritized in terms of likelihood and seriousness. For details of a risk-based approach to governance assessment, please refer to www.adb.org/Documents/Guidelines/GACAP-II-Guidelines.pdf.

Other types of indicators may be used to provide early warning signals of corruption risks. For example, signs that bribes and kickbacks are being offered include the shortlisting and selection of the same tenderers; unjustified sole-source awards; unexplained delays; selection of the low bidder, followed by a change order increasing the price or scope of the contract; and/or resistance to meeting standard specifications. Contractor collusion may be indicated by persistently high bid prices, relatively few bidders, and the same bidders, with losing bidders becoming subcontractors.¹⁶ Such indicators, however, should not be immediately taken as evidence of wrongdoing. For example, a firm might have been unable to participate in the bidding process because its existing engagements had precluded taking on additional work. Often, a regular pattern of suspicious behavior over time is a better indicator than evidence from a single bid.

Examples of Sector Risks. Table 2 illustrates generic sector risks. Some of these risks may occur in the specific DMC sector being assessed; others may not. For GACAP II purposes, the actual risk assessment and risk management plan will follow Appendix 8 in the GACAP II guidelines. If a corruption risk, for example, is identified in regulation (institutional dimension) and another corruption risk is identified in staff appointments (organizational dimension), both would be reported as corruption risks in the risk assessment.

Table 2 Urban Water Supply Sector—Examples of Generic Risks

Dimension	Risks
1. Institutional Risks	
1.1 Policy	<p>Vested political and business interests influence the focus of policy and investment priorities by pushing for sector investments that provide high levels of return for themselves and/or their cronies. These can undermine sector responsiveness to actual needs.</p> <p>Policy makers have little regard for improvements in sector governance capacity and in the governance framework, which can impair sustainability of sector investments.</p> <p>Policy decisions to source water from surface water and groundwater can create opportunities for corruption from the construction of treatment plants and procurement of chemicals.</p>

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¹⁶ Organisation for Economic Co-operation and Development. 2008. *Guidelines for Fighting Bid Rigging in Public Procurement*. Paris. www.oecd.org/dataoecd/27/19/42851044.pdf

Table 2 *continued*

Dimension	Risks
	Policies that fail to study connection fees and tariffs for low-income households can hamper the poor's access to piped water supply.
1.2 Legal framework	The absence of a legal framework for managing contracts, along with ill-defined responsibilities and risk-sharing arrangements, can pose corruption risks.
1.3 Regulation	<p>Lack of capacity to balance the needs of customers and the industry can weaken the sector's viability.</p> <p>The lack of financial and management autonomy of the regulator can undermine independent sector regulation.</p> <p>Utilities secure waivers to regulations and licensing in return for unofficial payments to bypass established standards or procedures. These can compromise efforts to provide a fair playing field.</p> <p>Repetitive procedures for obtaining clearances have no time limit for the final decision. These can work against efficiency and provide opportunities for staff to ask for bribes.</p> <p>Lack of capacity for implementing public information and outreach systems can create regulatory distrust.</p>
2. Organizational Risks	
2.1 Planning	<p>Absent or inefficient water delivery arising from inadequate planning can result in the purchase of expensive water from water providers.</p> <p>Limited capacity for informed participation by customer groups, industry and professional associations, and other civil society organizations in sector planning processes can weaken responsiveness of sector plans.</p>
2.2 Financial Management	<p>Inadequate financial management capacity (computerized planning, executing, monitoring, and reporting) in sector agencies and utility companies can impair sector performance and optimal resource uses.</p> <p>Unpredictable budget execution can lead to unplanned reallocations and reduce resources available for priority expenditures.</p> <p>Inadequate revenue streams to cover operations and maintenance costs, including depreciation, as well as to provide a return on invested capital can lead to poor service quality and undermine new investments.</p> <p>Weak enforcement of internal controls on revenue and expenditure management can lead to misuse of funds and fraud.</p> <p>Weak accounting systems and record-keeping practices can hamper provision of timely and adequate information on revenue streams, expenditure flows, liquidity, and debt levels/arrears.</p>

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Table 2 *continued*

Dimension	Risks
	<p>Incomplete recording of transactions due to technical weaknesses and/or disregard for comprehensiveness and accuracy can obscure fraudulent activity, impede auditing, and restrict management control.</p> <p>The lack of relevant external audits of sector agencies and utility companies can weaken accountability.</p>
<p>2.3 Procurement</p> <p>(i) Procurement planning</p> <p>(ii) Advertising</p> <p>(iii) Prequalification and bid submission</p> <p>(iv) Bid evaluation</p> <p>(v) Award of contract</p>	<p>The absence of procurement professionals and competent engineers can lead to loose contracts, legal disputes, and nondelivery of services.</p> <p>Technical specifications suit favored contractors, which can preclude competitive procurement.</p> <p>Large capital projects present opportunities for large-scale procurement, which can create vulnerability to leakages when transparent procurement processes are not used.</p> <p>Limiting the dissemination of information on procurement opportunities to well-connected private companies can compromise procurement based on best-value or expertise.</p> <p>Unexplained delays in the procurement process can allow secret late bids or enable decision makers to canvass bidders in an attempt to extract bribes.</p> <p>Potential investors who offer to conduct a feasibility study at no cost and submit unsolicited bids can create inequitable opportunities to gain an inside track on contract rights.</p> <p>Disqualification of bidders and/or selection of high-priced bidders without sufficient justification can pose corruption risks.</p> <p>Officials who work in the sector use their influence to direct contract awards to selected companies. Inflated prices (e.g., capital works, supply of chemicals, vehicles, and equipment) fund kickbacks to officials, which can compromise quality of works and/or services.</p> <p>In the case of construction contracts, selection and award of contract to the lowest bidder, followed by change orders increasing the price, or changing the specifications, or reducing the quality or volume of goods and services can pose corruption risks. Renegotiations, if nontransparent, present opportunities for making illegal gains.</p> <p>In the case of public–private partnerships, bribes from the private water provider can lead to the issuance of contracts that grant favorable terms in relation to exclusivity, contract duration, and coverage of revenue-rich service areas.</p>

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Table 2 *continued*

Dimension	Risks
(vi) Contract management	<p>Officials accept or excuse substandard work and materials, and then want to re-hire the same contractor due to kickbacks from the contractor. Substandard services subvert sound resource uses.</p> <p>Falsification of inspection certificates and quality tests can pose risks from corruption.</p> <p>Large contracts with utilities in an environment characterized by weak watchdog institutions can provide opportunities to decision makers for making illegal gains.</p> <p>Lack of public capacity to manage complex contracts can lead to a high cost of services, unacceptability of services to customers, and unjustified gains for the private sector.</p>
2.4 Human resources	<p>Conflict of interest with regard to staff appointments, especially senior level appointments with decision-making authority for the sector, can interfere in the performance of staff duties and lead to actions that favor certain contractors and political patrons.</p> <p>Nepotism and corruption allow promotion of unqualified personnel, which can compromise responsive service delivery, and create an environment in which staff members have limited incentives to perform well.</p>
3. Sector Operations	
3.1 Water harvesting and storage	<p>Poor water reservoir management that leads to inefficient and unreliable water supply can provide opportunities for corruption.</p>
3.2 Water treatment	<p>Kickbacks from the construction of water treatment plants can pose risks from noncompliance with specifications and substandard quality of capital works.</p> <p>Lack of compliance with water quality standards and ill-maintained water treatment facilities can provide opportunities for water utilities and wastewater companies to bribe law enforcers in return for ignoring such violations.</p> <p>Diversion of inputs such as chemicals for water treatment for resale or other unauthorized uses can provide illegal income for utilities personnel.</p>
3.3 Distribution	<p>In return for side payments, pumps or tanks are located where they benefit the elite and other favored groups. Preferential treatment by water utilities leads to inequitable access to water supply.</p> <p>Private vendors and cartels collude with public officials to prevent network extension and preserve their monopoly over provision of water supply to specific neighborhoods. This forces customers to rely on overpriced and potentially unsafe water from vendors and cartels.</p>

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Table 2 continued

Dimension	Risks
3.4 Customer Interface	<p>Water connection: Undue connection delays can provide opportunities for utility staff to ask for bribes to install water connections. Utility staff may also ignore or conceal illegal connections in exchange for side payments from customers.</p> <p>Non-network water supply: Water utility staff members use utility tankers to provide illicit water supply to customers in exchange for unofficial payments.</p> <p>Meter reading: Meter tampering and broken meter seals can pose risks from inaccurate billing of used water supply and provide opportunities for corruption.</p> <p>Payment and correction of bills: A high incidence of billing disputes or bill corrections can create opportunities for bill collectors to extract side payments.</p> <p>Repair service: Poor maintenance of complaints records and undue delay in attending to complaints can push customers to pay unofficial fees to hasten resolution of complaints.</p> <p>Meter installation and replacement: Delays in installing water meters and replacing defective meters can provide avenues for consumers to offer side payments to utilities personnel in return for a flat water consumption rate for a prolonged period.</p> <p>Disconnection: A high level of receivables and defaults in bill payments can contribute to corruption risks. Utility staff sent to disconnect a customer may accept payment for leaving the customer connected, while reporting to the utility that the disconnection has been done.</p> <p>Reconnection: Delays even after rectification of cause for disconnection can provide opportunities to extract bribes from customers in return for preferential treatment in the restoration of water supply.</p>

Sources:

- (i) ADB Urban Water Supply Sector Guidance Note Preparation Team.
- (ii) Halpern, Jonathan, Charles Kenny, Eric Dickson, David Ehrhardt, and Chloe Oliver. 2008. *Detering Corruption and Improving Governance in the Urban Water Supply and Sanitation Sector: A Sourcebook*. Water Working Note No. 18. Washington, DC: World Bank. <http://go.worldbank.org/HC582BJRE0>
- (iii) Plummer, Janelle and Peter Cross. 2007. Tackling Corruption in the Water and Sanitation Sector in Africa. In J. Edgardo Campos and Sanjay Pradhan, eds. *The Many Faces of Corruption*. Washington, DC: World Bank.

Glossary

- Bribe – Advance payment to an official or staff member in return for a promise to act in a certain way, such as awarding a supply contract to a particular firm or installing a connection within a particular time frame.
- Capacity development – The process of unleashing, strengthening, and maintaining capacity over time. Capacity refers to the ability of people, organizations, and society to manage their affairs.
- Competitive bidding – A selection process based on open and transparent advertisement of an item or service, which ensures that the best bidder wins according to qualifications, value, and other objective criteria.
- Collection ratio – Refers to total revenue collected as a percentage of total revenue billed.
- Conflict of interest – Any situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.
- Corruption – The abuse of public or private office for personal gain. Involves behavior on the part of officials in the public and private sectors, in which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed.
- Corrupt practice – The offering, giving, receiving, or soliciting, directly or indirectly, anything of value to improperly influence the actions of another party.
- Cost recovery – Getting back the cost of providing water supply services through fees or other explicit transfers of funds.
- Cross subsidy – Transferring the burden of covering costs from one group of customers to another, effectively favoring the latter. Typically, it costs less to serve customers in nearby areas, and it will cost more to extend supply to a few households in remote areas.
- Financial management – A conglomeration of processes including accounting, financial reporting, internal controls, and audit.

Governance	– The manner in which power is exercised in the management of a country’s economic and social resources for development. It is synonymous with sound development management.
Institutions	– Formal and informal rules that govern behavior and shape interactions of groups and organizations. Associated with policy, legal, and regulatory frameworks.
Metered coverage	– The percentage of households with water meters.
Nonrevenue water	– Water that is either lost before it reaches the customer or that never gets billed to any customer. Losses can be technical losses, through leaks, or commercial losses, through illegal connections, theft, metering inaccuracies, or under-recording of customers’ consumption.
Organization	– An entity consisting of structures, systems, and procedures and that is oriented to the pursuit of specified objectives.
Policy	– A statement of a set of goals. A declaration of what is to be achieved.
Procurement	– The process through which suppliers of goods and services are selected and contracted.
Staff per 1,000 connections	– An efficiency measure that reflects the ratio of the total number of utility staff to actual water connections.
Stakeholder	– An individual, community, group, or organization with an interest in the outcome of an activity or intervention.
Water supply coverage	– The percentage of the population with access to a water source.
Water supply duration	– Number of hours per day wherein water supply is available.

Guidance Note: Urban Water Supply Sector Risk Assessment

The urban water supply sector is vulnerable to a broad range of risks that can threaten development effectiveness. Risks can spring from the involvement of multiple institutions in water governance, capital intensity, large-scale procurement contracts for goods and services that lend themselves to corruption, interface between public and private sectors, and political pressure on tariffs. Additional factors include weak capacity of sector agencies, high demand for water services, water scarcity, and dispersed water provision in poorly planned urban communities. This guidance note aims to explain key sector features of urban water supply and identify entry points for mapping governance risks.

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