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Blending in the water and sanitation sector

November 2015

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Directorate-General for International Cooperation and Development
European Commission

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Preface

Blending is an instrument for achieving European Union (EU) external policy objectives, complementary to other aid modalities and pursuing the relevant regional, national and overarching policy priorities. Blending is the combination of EU grants with loans, risk capital or guarantees from public and private financiers. The idea behind the instrument is that the EU grant element can be used strategically to attract additional financing for important investments for development in EU partner countries.

This and three other sector reference documents provide basic information on the main supported sectors in EU partner countries and on how potential support can be provided by EU blending operations in:

- energy;
- transport;
- water and sanitation;
- private sector development.

The four sector reference documents complement the *Guidelines on EU blending operations*, which is the central guidance document on blending operations and which summarises the key features, modalities and operational aspects of blending applicable to all sectors.

The main audience for these documents is the staff of the EU Delegations and of the Directorate-General for International Cooperation and Development (DG DEVCO) and the Directorate-General for Neighbourhood and Enlargement Negotiations (DG NEAR).

Abbreviations and acronyms

AFD	Agence Française de Développement
CAR	corporacion autonoma regional
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EU	European Union
EUWI	EU Water Initiative
ITF	EU-Africa Infrastructure Trust Fund
IWRM	integrated water resource management
LAIF	Latin America Investment Fund
LV WATSAN	Lake Victoria Water and Sanitation Initiative
MDG	Millennium Development Goal
NIF	Neighbourhood Investment Facility
UWSCG	United Water Supply Company of Georgia LLC

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CHAPTER 1

Sector overview

1.1. Context

The water and sanitation sector covers infrastructure and services related to providing safe and quality drinking water and sanitation services to households. European Union (EU) support focuses on investment projects in the sector.

Typically, **drinking water systems** include infrastructure for treatment of water, pipeline for delivering water and associated pumps. They have certain features of a private good in that consumers can be charged for the quantity used and non-payers can be excluded from the system.

Infrastructure for **wastewater systems** typically includes sewage collection systems, wastewater treatment facilities and sewage sludge treatment. These systems have features of both private and public goods in that the general public and not only service consumers benefit from sewage treatment, through improved water quality and improved socio-economic conditions (see Figure 1.1).

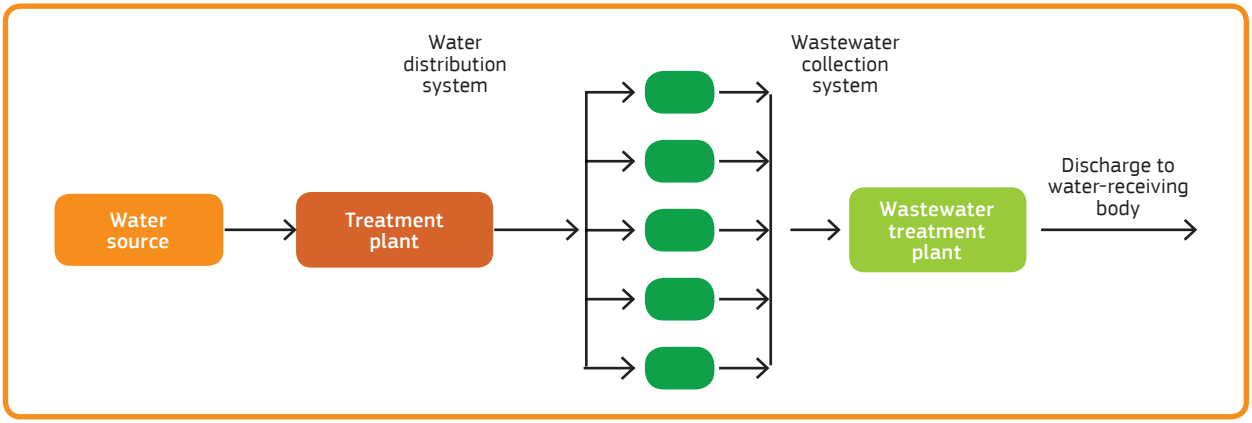
Ideally, sewage treatment should be planned, implemented, managed and financed in an integrated manner along with water supply so as to provide effective and efficient solutions for water services. In practice, sewage treatment usually lags water supply and has its own institutions, management systems and sources of finance. Typically, where population densities increase, sewage network development is needed, as are major financial resources. In other cases, on-site facilities are in place (e.g. septic tanks).

MAIN CHALLENGES

Water supply and sanitation should be considered within the broader context of water resource management. The main challenges for the future are (OECD, 2012):

- **Water quantity:** It is estimated that by 2050, 3.9 billion people, representing over 40% of the world's population, are likely to be living in river basins under severe water stress. Water demand is projected to increase by 55% globally between

FIGURE 1.1 Typical model of water and wastewater system from the source to discharge



2000 and 2050. The increase in demand will come mainly from manufacturing, electricity and the domestic sector. Water resource management will need to take into account this increasing competition between water users.

- **Water quality:** The quality of surface water in developing countries is expected to deteriorate, through nutrient flows from agriculture and poor wastewater treatment. The consequences will be increased eutrophication, biodiversity loss and an increase of waterborne diseases.

- **Access to water supply and sanitation services:** More than 240 million people (most of them in rural areas) are expected to be without access to an improved water source by 2050. Almost 1.4 billion people are projected to still be without access to basic sanitation by 2050, mostly in developing countries.

- **Water-related disasters:** The number of people at risk from floods is projected to rise from 1.2 billion today to around 1.6 billion in 2050, or nearly 20% of the world's population.

Overall, the main challenges faced by the water sector in developing countries are (i) rationalisation of water use in relation to water scarcity; (ii) access to water services at an affordable price for the poor; (iii) coordination and experience in developing water sector projects; and (iv) developing a strategic approach to water resources by taking into account the needs of all water users including agriculture, industry and households.

OTHER EU-SUPPORTED FACILITIES

The **EU Water Initiative (EUWI)** is an international political initiative that mobilises and coordinates all available EU resources to achieve the water-related Millennium Development Goals (MDGs) in partner countries. Through national policy dialogues, the EUWI aims to improve coordination and cooperation and deliver more effective development assistance. The initiative is being implemented through integrated water resource management (IWRM) based on a river basin approach (see Box 1.1). The EU provides expertise and knowledge on sustainable management and distribution of water, including appropriate pricing policies. As a result of the EUWI, the **ACP-EU Water Facility** was created to deliver and leverage investments in water and sanitation services in Sub-Saharan Africa, the Caribbean and the Pacific.

1.2 Regional overview

Globally, the demand for water is increasing. This poses a threat and risk to both the quantity and quality of water essential for human life; for health, social and economic activities including agriculture; and for natural ecosystems. In addition, climate change is expected to affect populations directly by more frequent extreme events such as floods and droughts, rising sea levels and changes in the seasonal distribution and amount of precipitation — thus affecting access to water resources. Experience has shown that there is still much to be done to improve existing water systems in terms of efficiency of water supply and usage, reduction of losses and water consumption patterns.

There are large differences between regions and countries regarding the availability of freshwater resources, especially those in temperate versus tropical zones. The majority of countries in the **Middle East and North Africa** can be classified as having absolute water scarcity today. In **Sub-Saharan Africa**, water scarcity is more related to the economic situation and a lack of human, institutional and financial capacities. In the **Middle East**, water resources are inadequately and unequally distributed and constitute a major geopolitical challenge. In **Latin America**, where a large proportion of the world's freshwater resources are located, resources are unevenly distributed throughout the region. In densely populated areas worldwide, the poorest frequently suffer the worst water supply and sewage service coverage. Water quality is affected by poor sanitation, agriculture and mining practices.

Although the overall MDG for **drinking water** was achieved, significant regional differences exist (UNICEF and WHO, 2012). Sub-Saharan Africa and Oceania have not met the MDG drinking water target. The use of piped water is low (30%) in Sub-Saharan Africa, Oceania, Southern Asia and South East Asia. In Eastern Asia, Northern Africa, Western Asia, and Latin America and the Caribbean, at least 70% of the population are using piped water on their premises.

BOX 1.1 Integrated approach to water management

An integrated approach to water is needed to support sustainable development and the eradication of poverty. The following approaches play a considerable role in this process in relation to integrated planning and programming of water and sanitation projects along different dimensions and perspectives.

Integrated water resource management: IWRM implements governance measures aimed at conserving and ensuring the sustainability of water resources. The concept of governance arose in order to guarantee more rational water resource management, ensure that the poorest people have access to water and generally contribute to changing attitudes in the sector. IWRM is aimed at ensuring that water is used more efficiently (economic dimension), promoting equitable access to water (social dimension) and guaranteeing sustainability (environmental dimension).

Sector-wide approach: The sector-wide approach is a joint dialogue process (between government, technical and financial partners and others) that allows the government to define and implement its sector programme. This programme includes all the documents required to establish and implement its vision for the sector, specifically with regard to policy, strategy, budget and the sector's coordination framework.

IWRM can be described as a process of integration (between sectors partially involved with water resources and stakeholders in the sector), a tool of governance and a way of understanding issues faced in the sector; in contrast, the sector-wide approach is an organisational process that enables a sector programme to be planned and developed.

River basin management planning: The principle of IWRM has led to the promotion of the river basin as the logical geographic unit for its practical realisation. The approach offers the possibility of strategic planning of water resources from the source to the estuary taking into account monitoring of precipitation, surface and groundwater quantity and quality and sediment erosion, loan, and transport, the stabilisation of channels, flood risk assessment and flood control. One of the main problems with the application is that river basins rarely conform to existing administrative entities and structures. Several river basins around the world are the focus of river basin organisations, with broad stakeholder participation providing the basis for integrated water management. It is expected that the role of river basis management planning in development assistance planning will increase in the future.

Note: For further information, see EC (2009).

Access to drinking water is further diversified by urban and rural disparities; 80% of the world's urban population has piped water connections, compared to only 29% of people in rural areas.

In many countries of Southern Asia and Sub-Saharan Africa, **sanitation coverage** is below 50%. The majority of people without improved sanitation services live in rural areas. In the least developed countries, the majority of people have not benefited from investment in water and sanitation. The Neighbourhood East countries typically have high rates of service coverage for both water and sanitation, particularly in urban areas, but their infrastructure fails to maintain existing levels of service. It the infrastructure is often oversized and not able to cover operational and maintenance costs. Users face serious affordability problems.

1.3 Objectives

Goal 6 of the **Sustainable Development Goals** is to ensure access to water and sanitation for all, and sets the following six specific targets.

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the

proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

- By 2030, substantially increase water use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

- By 2030, implement integrated water resource management at all levels, including through trans-boundary cooperation as appropriate.

- By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

    - By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

    - Support and strengthen the participation of local communities in improving water and sanitation management.

The MDGs had previously set two targets specifically for water and sanitation:

- **water target** — to halve the proportion of people without sustainable access to safe drinking water by 2015;

- **sanitation target** — to halve the proportion of people without access to basic sanitation by 2015.

In 2010, the MDG on sustainable access to drinking water was achieved: 89% of the world's population — 6.1 billion people — used improved drinking water sources (UNICEF and WHO, 2012), although 783 million people still remained without access to an improved water source. The sanitation MDG still remains off track, with 63% of people having access to improved sanitation (compared to the goal of 75% by 2015). It is estimated that 2.5 billion people lack basic levels of sanitation.

The EU vision of development expressed in the **European Consensus on Development** (EC, 2005) reflects EU willingness to make a decisive contribution to the eradication of poverty — specifically, through an integrated water resource management (IWRM) policy framework to ensure a supply of sufficient, good-quality drinking water and adequate sanitation and hygiene to every human being in line with the MDGs. It also aims to establish a framework for long-term protection of all water resources, preventing further deterioration and promoting sustainable water use.

The **Agenda for Change** (EC, 2011), the new EU development policy, aims to enhance EU efforts in the area of inclusive and sustainable growth. It stresses the need for supporting efforts in the areas of markets, infrastructure and cross-border cooperation on water especially in relation to agriculture, food security, energy and human development.

The EU significantly contributed to the achievements of the MDG for water and sanitation through financial and political support to national and regional indicative programmes, and assistance under the blending facilities and the ACP-EU Water Facility.

The water and sanitation projects financed through the **blending facilities** support the overall global challenges of providing safe water supply and sanitation and sustainable water resource management. By improving access to safe water and sanitation, the blending facilities contribute to:

- improving **public health** through decreasing water pollution, increasing protection of the environment and controlling climate change impacts;

- promoting pro-poor services and contributing to **poverty reduction** through mitigating affordability constrains and making investments possible;

- improving living conditions of populations and thus improving **local development** conditions;

- **leveraging finance**, enabling private sector involvement and reducing the financial burden on countries.

1.4 Main actors

In the water and sanitation sector, many different stakeholders are involved in the planning, financing and implementation of investment projects.

The **national (and regional/local) government** is responsible for strategic planning of water resource management, including planning for water supply and sanitation infrastructure and ensuring cross-sectoral coordination — e.g. with agriculture, industry and municipal services. Water supply and sanitation planning usually takes the form of a national-level strategy which sets the objectives and targets of improved access to water supply and sanitation services, identifies sources of financing and describes the implementation arrangements. The government is responsible for setting standards for drinking water quality and wastewater treatment.

The national government often provides subsidies for water services and/or finance for capital investment in the sector. Typically, central governments channel finance (grants, soft loans) for capital spending on water to local authorities or water utilities from both national and foreign aid sources. Central governments may also provide sovereign guarantees to sub-national levels to assist their financing.

As a result of decentralisation, in many cases responsibility for provision of water supply and sanitation services is shifted to the **local authority** level. Local authorities are usually responsible for planning, preparing, ensuring finance and executing water supply and sanitation projects; they also often supervising water utilities or water companies which operate and maintain the infrastructure on their behalf. Local authorities are typically in charge of the application and collection of water fees and taxes from water service users.

Specialised national financial intermediaries are financial agencies placed between the central government and local service providers — e.g. national development banks, municipal development corporations and environmental funds. Their role is to funnel money to regional and local or sector borrowers.

Water utilities are public operators founded and provided by the government or other public administration authorities. Typically, they are owned by local authorities. They can receive funding from local councils and attract funding from internal and foreign sources. In some cases, they can be privatised.

In some cases, **water associations** (voluntary not-for-profit cooperatives) of water consumers are created for the purpose of developing water and sanitation services for a specific area. This is often the case for services delivered in rural or lightly populated areas.

A good independent **regulator** (a separate body or agency) plays a key role in ensuring that private operators and publicly owned enterprises perform in the public interest: that they provide good quality, efficient services at a fair price.

Water inspectorates are public enforcement bodies responsible for the monitoring and enforcement of drinking water and wastewater quality standards.

Service providers (operators) provide water services, usually when they own a part of the infrastructure. They can be privately owned.

Customers (users) of water and sanitation services are responsible for paying for the services provided. They should also be involved in planning the water projects, to ensure their support and willingness to pay for improved service.

In many developing countries, water and sanitation programmes in rural and peri-urban areas are undertaken with **civil society partnerships** — i.e. non-governmental organisations[1]. Most of these entities serve as channels for decentralised donor funds.

[1] 'Non-governmental organisation' is a broad term which includes community-based organisations, church groups, charities and other philanthropic bodies. Examples of such organisations specialising in water and sanitation programmes are Eau Vive and WaterAid.

Financiers, banks and other financial institutions are typically lenders, bondholders or portfolio equity investors in relation to the projects or enterprises they finance. They also offer advisory services to clients.

The **private sector** has multiple roles to play in water and sanitation services, from providing advisory services to the public sector on developing projects; to being involved in contracting, operation or maintenance; to full privatisation — ownership of water assets and services.

1.5 Enabling environment

Development and financing of water and sanitation projects requires an enabling environment, the key elements of which are summarised below[2].

- **Policy, strategy and vision:** This element encompasses establishing a shared vision and strategy among all actors in a collaborative and coordinated manner, and ensuring the political will to implement a water and sanitation project.
- **Institutional arrangements:** Institutions at all levels must clearly understand their roles, responsibilities and authorities. They must also have the resources to carry out their roles. Institutional arrangements to implement the project must be in place.
- **Financial sustainability:** Efficient water service projects must be backed by robust tariff setting, reform and regulation in order to develop a viable framework for capital investment improvements.
- **Project planning:** Project developers need to plan the sequence and timing of project development, and obtain finance and construction within the framework of established country-level targets, deadlines and standards.

The main drivers which stimulate investment in the water and sanitation sector follow.

- The **Sustainable Development Goals** for water and sanitation are expected to be the main driver for both developing and providing assistance to countries from the policy perspective, as the MDGs were before them.
- Increased **demand for water supply** (by economic players) and observed water scarcity are a concern for many countries with regard to the future provision of safe water to populations and their role in the economic development of their countries. The world population is expected to increase to more than 9 billion by 2050, which will increase the demand for water. Much of the population will be living in **urban areas** with specific needs for access to reliable and safe water and sanitation services.
- **Climate change** impacts on water resources stimulate the development of climate-resilient infrastructure as well as the improved efficiency of existing water systems.
- **Water pollution**, as a result of untreated wastewater, poses a serious threat to public health, economic activities such as tourism and fisheries, and local economies. The costs of inaction for country economies is much higher than the costs of improving sanitation services.
- In many developing systems, access to water supply and sanitation services requires special **decentralised systems and technologies** (especially for rural areas). Several system and technological solutions exist and can be scaled up for other countries.
- Water and sanitation are often considered a **public good** with strong external benefits — e.g. social benefits of improved health. Public goods are provided by public authorities, since it is not profitable for the private sector. Therefore, subsidies for water and sanitation are often a driver for investments.
- **External costs from the use of water** (e.g. pollution) can be penalised through taxes and fees (polluter pays principle). Funds raised through such economic instruments can be used

[2] Adapted from Water and Sanitation Program (2012).

to develop needed infrastructure. A well-established mechanism to transfer some of the costs of water resource management activities from the public purse to investments in water include water licensing fees, pollution and abstraction fees or taxes.

Water and sanitation are generally considered part of public infrastructure, which poses the greatest financing challenge in developing countries. Water and sanitation services are on the boundary between traditional infrastructure (with a high degree of user fees, e.g. transport and telecommunications) and social services (e.g. education and health, which rely on public finance). Water and sanitation fall between these cases, posing a dilemma as to what extent water should be treated as a basic right (to be provided for free or with a subsidy) or whether it is a commercial service that can be charged for (see Box 1.2). As a result, water services are priced below economic levels, and the sector is under-financed.

There are several barriers that work against the drivers for developing investment projects in the sector. The remainder of this section describes these various sets of barriers and constraints.

BOX 1.2 Who should pay for water?

Typically, people pay more attention to the quality of drinking water than to the quality of the wastewater they return to the ecosystem. They are more willing to pay for access to safe and reliable drinking water and removal of wastewater than for wastewater treatment. Approaches to finance thus differ for sanitation financing and water supply. In general, water-related infrastructure is under-invested. The infrastructure requires significant levels of investment and has long payback periods; also, the benefits are not fully recognised, therefore funds are difficult to mobilise, resulting in lower-than-needed investments and inadequate maintenance of infrastructure.

POLITICAL AND REGULATORY ENVIRONMENT BARRIERS

- **Environment is low on the political agenda:** For many decision-makers, environmental pollution caused by inadequate sanitation standards is low on the political agenda. There is no incentive for governments to develop strategies or set targets and objectives for improving water and sanitation services.

- **Revenue and expenditure mismatch:** In many countries, decentralisation of responsibilities for water service provision is not accompanied with financial decentralisation. The mandatory municipal tasks are under-financed.

- **Low level of enforcement:** Often, countries might have strategies and targets for water and sanitation services, but enforcement is inadequate; therefore, there are insufficient incentives to encourage project development and to discourage pollution (enforcement of polluter pays principle).

- **Pricing:** Decisions to increase tariffs for water and sanitation services are unpopular among politicians. For many decision-makers at the local level, water and sanitation projects are a once-in-a-lifetime experience, and they would not risk losing popularity by increasing tariffs for the services.

FINANCING AND MARKET BARRIERS

- **Lack of funds or capacity to raise funds for capital investment:** In many developing countries, water and sanitation services are struggling to provide finance for operation and maintenance and have no capacity to raise funds for capital investments. The infrastructure required for water services is costly and amortised over long periods, and its financial returns are often slow to materialise. Once built, infrastructure is a sunk cost with little or no alternative value; hence, it cannot offer collateral security for financiers.

- **Low tariff levels:** Low tariffs are one of the most common barriers to developing bankable projects and attracting external finance.

- **Unfavourable conditions for borrowing:** The development of water and sanitation projects is often hampered by the overall macroeconomic situation of the country, with limited fiscal space for additional debt or caps on borrowing.

- **Lack of conditions for private sector involvement:** The conditions for private sector involvement in water and sanitation services are frequently lacking. A sound institutional and regulatory environment is needed to attract private sector investment.

- **Lack of financial self-sufficiency:** Providers of water services should be able to count on sources of income (e.g. from tariffs, budgetary allocations, official development aid, etc.) for a sufficient future period to enable them to carry out their functions, including investments, efficiently. They also need freedom from political interference in their day-to-day business.

- **Cost recovery from users:** Cost recovery is influenced by affordability, appropriate use of tariff structures, targeted subsidies and cross-supports to reduce any hardship among vulnerable populations. In the past, the approach to full cost recovery assumed that all costs should be covered through the revenue generated by tariffs. Currently, the concept of sustainable cost recovery is considered more realistic and practical from a policy principles point of view.

- **Gap between economic and financial viability:** Water infrastructure projects are often in the gap between economic and financial viability. Projects can be economically attractive when seen from a long-term national perspective; but when considered as a commercial investment, they may be unable to generate adequate financial returns to attract financing. In general, economic viability should be the basis on which strategically important projects are selected, while financial viability will determine how projects can be funded. Typically, the gap is closed using a public subsidy, e.g. in the form of a grant or soft loan.

- **Affordability:** In many countries, the poorest people face affordability problems in paying for water services. The affordability issue is a serious constraint to tariff revenue — and thus to the sustainable provision of water services. The affordability constraint appears when water bills represent a more significant portion of income. Generally, a benchmark of 3–5 % of household income for a water tariff is used when planning water infrastructure investment projects and assessing affordability. Subsidies are therefore often justified in terms of keeping services affordable for poor households. Affordability is determined by household income, level of consumption, tariff policy, subsidy scheme and level of payment collection.

- **Creditworthiness of municipalities:** In the context of blending operations, local authorities need to become reliable partners for financial institutions, ensuring them that the loan will be paid back on agreed terms. The financial institutions assess how risky the loan might be. Often, credit ratings assigned by independent agencies are used which assess the long-term ability, capacity and willingness to repay debt at the specified terms. There is a close link between the credit ratings assigned and the cost of borrowing; the higher the ranking, the more favourable the terms of borrowing.

BOX 1.3 Characteristics of sustainable cost recovery

- An appropriate mix of tariffs, taxes and transfers to finance recurrent and capital costs and to leverage other forms of financing;
- Predictability of public subsidies to facilitate investment planning;
- Tariff policies that are affordable to all, including the poorest, while ensuring the financial sustainability of service providers.

MANAGEMENT AND INSTITUTIONAL CONSTRAINTS

- **Managing complex projects:** In many cases, local authorities lack the skills to manage complex infrastructure improvement projects. Capacities to develop, prepare and manage projects effectively are limited, especially for the financial aspects of project development including cost estimates or introducing tariff increase reforms. Frequently, a special project implementation unit has to be created and supported by external consultants paid by donors or provided by financial institutions.

- **Quality of project preparation:** The knowledge and quality of needed project documentation is often limited at the local level. This leads to delays in project implementation, as the appropriate studies need to be updated and upgraded. Typically, water and sanitation projects are supported through technical assistance grants to prepare adequate quality documentation to enable project financing.

- **Inadequate maintenance and management of infrastructure:** This is one of the most important constraints to efficient and effective delivery of water services. It includes high water losses in the network, leakages and low billing collection rates from customers.

- **Underdeveloped public participation:** This leads to a mismatch of infrastructure planning, which will not fulfil the needs of local populations. In addition, lack of public participation often leads to the so-called NIMBY — Not In My Background — syndrome, where residents are in favour of improvements offered by the project in general, but turn against it when the infrastructure needs to be constructed in their neighbourhood.

- **Lack of experience working with donors and financial institutions:** This lack leads to misunderstandings in the expectations and working culture of financiers. This, in turn, increases the risk assessment of financiers that the grant beneficiary or borrower will be able to spend the money effectively and efficiently and/or pay it back.

- **Good governance:** The importance of good governance of water resources, in order to utilise and take into account all drivers for investment, is often underestimated. Good practice in governance in the water sector includes (i) separation of policymaking, regulation and service provision; (ii) effective subsidiarity; (iii) clarity of financial status and objectives; (iv) accountability; (v) integrated policies from all relevant sectors; and (vi) legal recognition of the role of private and other non-state actors (EUWI-FWG, 2011).

- **Implementation capacity:** Institutions at all levels need to have the capacity to carry out their roles and responsibilities; this includes having adequate human resources with the full range of requisite skills.

- **Availability of products and services:** Project developers must assess the local market for provision of goods and services for infrastructure development, including the availability of consultants to support project development.

- **Financing gap:** This barrier encompasses both identification of the financing gap and of possible sources of financing for the planned infrastructure.

- **Financial sustainability:** Ensuring the financial viability of the project and creditworthiness of the local partner is a key precondition for the bankability of the project. It includes a capacity to conduct a reform of tariffs increase.

ENABLING ENVIRONMENT FOR PRIVATE SECTOR PARTICIPATION

In creating an enabling environment for private sector participation, the following aspects need to be considered[3]:

Legal and regulatory framework

- Clear and enforceable published laws to reassure private investors that they are on a level playing field

[3] Adapted from Head (2006).

- A legal regime that allows any disputes to be resolved quickly and in a cost-effective manner
- An established independent regulator working in accordance with the principle of equal regulatory treatment between the utility and the private sector
- A clear water resource development strategy and water policy defining the roles and respective powers and responsibilities of the various parties in the water sector

Policy framework for business development

- Fiscal incentives that are clearly defined, e.g. tax breaks
- Government policies and actions that demonstrate positive support for private sector participation and which are reflected at the utility level
- Consistent policies between different branches of government
- A coordinated strategy for private sector involvement in infrastructure projects

Institutional and organisational framework

- Adequate public sector capacity and resources to undertake the preparation of projects for both private and public sector implementation
- Clearly defined and delineated roles and responsibilities for government organisations
- Provisions for managing procurement of private sector involvement

CHAPTER 2

Project financing structures

A sustainable water sector financing structure must take into account not only how services are organised but also other aspects, such as who provides the services, degree of private sector participation, regulatory framework, financing, tariff setting and ways to address affordability, and the chosen technological solution. The financing structure for water and sanitation projects is chosen on a case-by-case basis. Nevertheless, there are several aspects which have to be taken into account when structuring the financing of water and sanitation projects.

2.1 Degree of private sector involvement

Financing structures in water and sanitation are determined by the degree of private sector involvement. Regarding the roles of the public and private sectors, the following aspects must be considered:

- sufficient viability of a project to attract private sector finance;
- public or private ownership of assets;
- public shareholding in a privately operated company;
- who is the best suited (the public or private sector) to attract financing at the most favourable terms.

Figure 2.1 illustrates the chain of decisions to be taken to determine the level of private involvement.

In several cases, water and sanitation projects will continue to be implemented in the public sector because they are not suitable for the private sector. Usually, these are (i) large and complex projects, (ii) projects with high site risks, (iii) projects with commercial risks which cannot be mitigated, or (iv) projects where an enabling environment for the private sector is not in place.

The most commonly used financing structures for water and sanitation with a gradual increase of private sector participation are presented in Figure 2.2 and described below.

INVOLVEMENT IN TECHNICAL ASSISTANCE

The private sector is involved in project preparation through technical assistance. It provides additional resources and specialists at what is often a critical point in the project cycle.

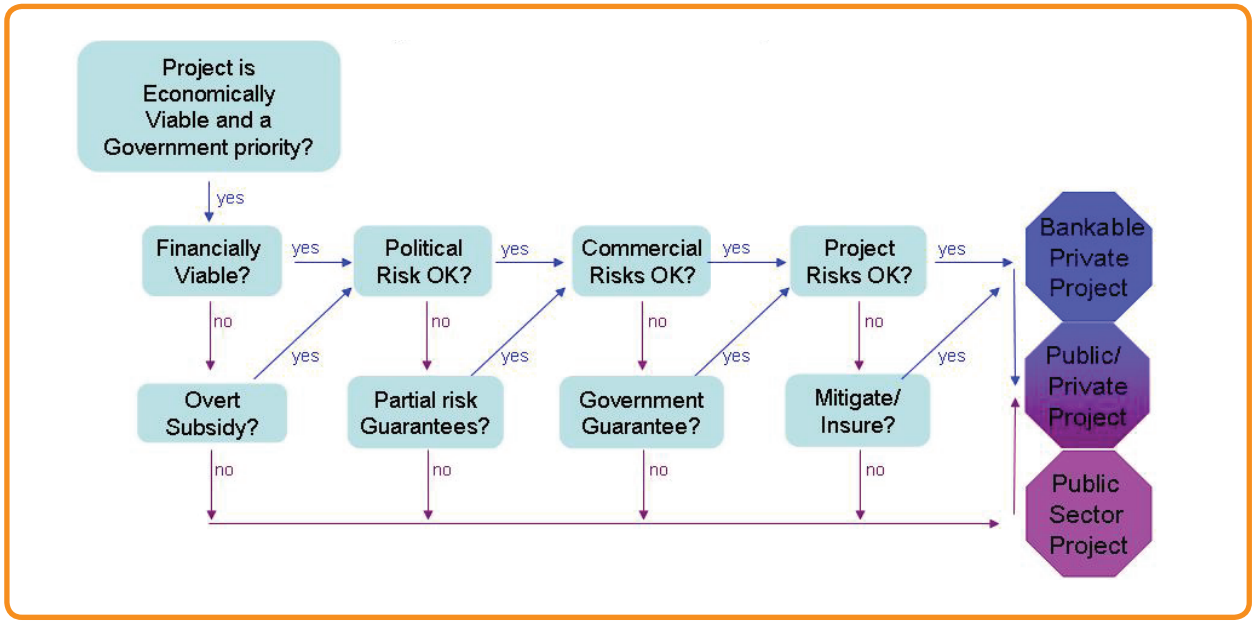
PRIVATE FINANCE

Private finance (from banks or financial institutions) can be used to complement public finance for the project. Typically, private finance takes the form of a loan. Although it helps the project proceed more rapidly, it can be costly, as the money needs to be repaid. It usually does not address issues related to design, construction, operation and management. If risk is perceived to be too high, the financial institution will either walk away or increase the expected rate of return.

TURNKEY CONTRACT

Under a turnkey contract, a single contractor is responsible for the design and construction phase. The contractor is responsible for all aspects of project

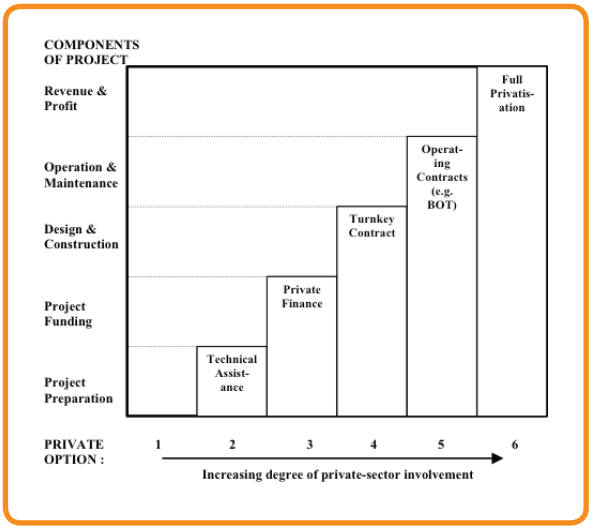
FIGURE 2.1 Determining the level of private sector involvement



Source: Head, 2006.

management and implementation, including design, procurement, and installation and commissioning. The contractor provides all labour, technical expertise and experience to carry out the task. The contractor is expected to provide guarantees relating both to project implementation and the subsequent reliability of the water infrastructure. In this model, a significant portion of risk is transferred to the private contractor.

FIGURE 2.2 Continuum of private sector involvement



Source: EC, 2001.

OPERATING CONTRACTS

These involve the private contractor not only in the construction of the infrastructure but also in its operation. Usually, the operator provides investment capital and expects to recover it over the operating period. The main options include the following.

- **Build-operate-transfer (BOT):** The private contractor constructs and operates the facility for a specific period. The public sector pays the contractor a fee, which can be fixed or linked to output or combined. The fee covers the operator's fixed and variable costs, including capital recovery. Ownership of the assets rests with the public sector.

- **Build-own-operate-transfer (BOOT):** This builds on the build-operate-transfer model in that the contractor owns the facility up to the point of transfer. This is one of the most commonly used models for private sector participation. The concession for operation is usually 15–25 years.

- **Build-own-operate (BOO):** In this model, the private sector constructs the infrastructure and then operates it on behalf of the public sector.

The initial operating period is usually defined (time needed to recover the capital investment), but there is no requirement to transfer ownership to the public sector. A further operating contract may be negotiated.

The key advantage of operating contracts is the transfer of technical and financial risks to the private sector with regard not only to construction but also to operation of the infrastructure.

FULL PRIVATISATION

The contractor is responsible not only for contracting and operating the water infrastructure but also for generating the income needed to recover costs and make a profit. The key difference between full privatisation and an operating contract is the source of income. In operating contracts, the contractor receives income from the public sector according to the agreed formula. In full privatisation, the private sector is normally responsible for generating income directly from those to whom the services are provided — e.g. households. The public agency may impose constraints on the fees the contractor can levy; this is typically the case where a private monopoly provides water supply services.

Recently, a growing number of water operating companies have arisen which have a commercial business model — i.e. they are open for equity capital to private stakeholders or engaged in full private ownership, but are fully or predominantly publicly owned (see Box 2.1).

BOX 2.1 Example of financing structure for delegated management of local water services: experience from Naivasha, Kenya

This financing structure targets the provision of water and sanitation services for low-income urban communities. It is designed to ensure affordable but high-quality services for consumers, profitability for the operators and sufficient revenues for sustainable asset maintenance. The small-scale operators are contracted by the municipal water utility to manage local supply lines that take water from the bulk supply line into informal settlements. The small-scale operator is responsible for supplying connections, billing and revenue collection, and minor network maintenance. Small-scale operators can be private or community-based organisations. The key to a well-functioning delegated management system is clear contractual arrangements and appropriate financial incentives for all actors. Water extraction is done by private borehole owners; these sell raw water to the small private network operator, which then distributes the water to a series of kiosks. The small private network operations have an agreement signed with the water utility.

Source: Water and Sanitation for the Urban Poor.

2.2 Degree of regionalisation

Financing structures for water and sanitation must be considered from the point of view a geographic scale. The choice of a model will depend on population density.

The model promoting regionalisation is used to delineate settlements into clusters, and in each cluster creating (or expanding) a single entity servicing the systems. A regional structure (operator) is set up. Usually, localities delegate service provision to a regional utility. Depending on the model, assets may remain with local authorities, regional utilities or asset holding companies that belong to the local authorities. In the suburban model, localities join utilities from neighbouring towns or agglomerations.

In the decentralised model, local authorities provide water and sanitation services themselves. Often, they are too small to build sufficient institutional and technical capacities and to operate and maintain the infrastructure properly. In many cases, they enter into voluntary agreements.

Recently, the traditional economies of scale approach to water supply and sanitation (piped solution) has been questioned, because there are very high costs attached to large municipal systems and difficulties in resilience and flexibility. In decentralised solutions, markets for water re-use are being created; the

models include home- and landowners financing and building on-site systems (see Box 2.2).

BOX 2.2 Example of viable financing structures for sanitation in small towns and rural settlements in Moldova

One of the reasons for non-functioning wastewater treatment services in small towns and rural settlements is that the existing operating model — where almost every village operates its own system — proved to be unsustainable due to the lack of technical and/or financial capacity in most villages.

The proposed business models depend on the scale involved: rural areas around urban centres, rural communes which may join agglomerations where wastewater collection and treatment is economically justified, or remote communes where local services have to be provided. The following solutions are proposed.

- **For suburban areas —** suburban regionalisation, by creating joint stock companies and municipal associations, and creating multipurpose utilities around towns with significant revenues from sources other than the provision of water and wastewater services
- **For other agglomerations of significant concentrations of population —** centralised system with service provision through regionalised utility and/or light regionalisation through the creation of regional not-for-profit institutions that will provide technical services (expertise, laboratory tests, leakage detection, etc.) to utilities
- **For remote localities —** functional regionalisation through improved management of decentralised systems (by municipal companies, small private operators or water user associations) and establishing a regional not-for-profit institution that will provide some technical services (expertise, leakage detection, similar but not core water supply and wastewater services) to utilities

Source: Kommunalkredit Public Consulting (2013).

2.3 Organisational structures

Financing structures also take into account the delegation of service provision. Water and wastewater services can be provided by local governments in the locality, by neighbouring local authorities, established associations, non-commercial or commercial local or regional public utilities or cooperatives, or small private operators.

2.4 Technological solutions

Technological solutions to achieve the objectives of water and sanitation as well as ensure willingness to pay need to be carefully analysed. Often, sophisticated tertiary wastewater systems are promoted by standards. This leads to the development of wastewater facilities in only a few localities in a country. The widespread development of primary wastewater systems could yield better environmental and public health benefits per unit of outlay. Nevertheless, infrastructure should always be designed so that it can be upgraded in the future.

2.5 Cost structure

The costs involved in operation and maintenance of infrastructure, expanding coverage or upgrading services to meet social and environmental expectations are significant. The structure of costs has to be taken into account when designing business models. Centralised water distribution in an urban area typically requires infrastructure with a high fixed capital cost, but a relatively low operating cost (except where a large amount of pumping and treatment is needed). The main variable costs are energy and chemicals. The model has to be tailored to these cost features: long term, low interest, reflecting capital intensity and longevity of assets.

Water supply systems in rural districts have a different cost structure. They tend to be smaller and more fragmented, based on individual households. There is less economy of scale, and the disadvantaged communities are likely to have disproportionately high unit costs of supply.

2.6 Financial instruments used in the sector

The main sources of revenue are threefold: tariffs paid for water and sanitation services by water users, subsidies (e.g. from taxes) and transfers from national sources or grants. This is the so-called **3T (tariffs, taxes, transfers) concept**[1]. All loans, bonds and equity investments have to be serviced and repaid from the future revenue stream from these sources.

3TS: NON-REPAYABLE INSTRUMENTS

Non-repayable instruments represent the ultimate source of financing in the water sector. In general, water project finance relies on a mix of financial instruments. The costs of water services can be covered by three sources of revenue.

Tariffs are the foundation of the future cash flow and the main source of funding of operation and maintenance costs. In well-managed services with a good revenue base, they can also contribute to investment cost. Cost recovery from users for wastewater collection and treatment is usually more difficult than for water supply. It is common for wastewater services to be charged through a surcharge on a freshwater tariff. The broader community-level benefits of sanitation and lower willingness to pay for wastewater — and thus value added for the society — provide justification for public intervention, including using subsidies or grants for sanitation services.

In countries where there are severe constraints on affordability, public budget spending plays a significant role in helping the water and sanitation sector deal with the reconstruction of deteriorated assets or expansion of systems. **Tax-funded subsidies** are used to supplement tariff revenue. They are applied to support specific groups of customers and can be provided in the form of grants and/or (soft) loans from the national level.

Transfers are usually grants from official development aid donors, national and international philanthropic donations and — recently — companies that became active in supporting provision of water services as part of their corporate social responsibility. In the case of blending facilities, the EU grant element for technical assistance or an investment grant is considered under this category. It is normal for developing countries to maximise the uptake of grants before seeking repayable sources of finance.

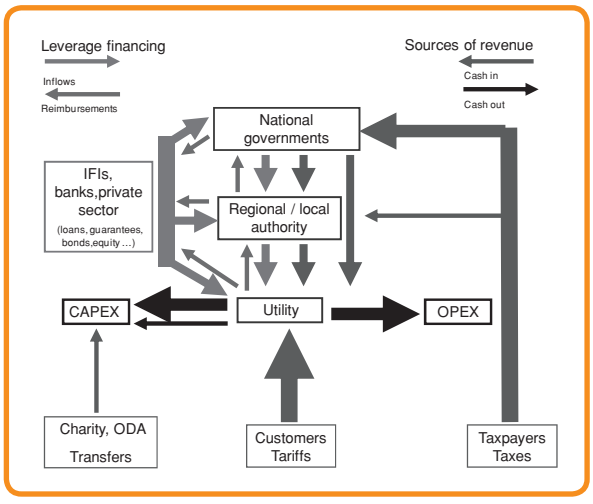
The 3T concept represents who actually pays for water. Figure 2.3 illustrates the financial flows to water supply and sanitation.

REPAYABLE INSTRUMENTS

Repayable instruments (public and private loans, bonds, equity, etc., can help cover upfront investment costs and thus enable the government to leverage available sources of revenue and reduce financing costs.

Short-term loans can be used to cover working capital requirements and to cushion cash flow. They are usually available from local banks. Long-term loans on better terms are provided by financial institutions for the development of water infrastructure. Loans can be made to public water utilities which undertake the servicing of the debt or a loan made to a project, where the security of a loan is expected to come from the cash flow of the project. Loans are usually made

FIGURE 2.3 The 3T model



Source: OECD, 2009a.

[1] The concept is described in the OECD (2009b); this section is based on this concept.

for stand-alone items such as wastewater treatment plant and pipeline development.

Microfinance can be a source of finance for local and community projects. It is typically used for schemes with a short pay-back period. There is limited experience with their application in the water sector, but microfinance can play an important complementary role, especially in the context of overcoming affordability constraints and providing access to small-scale water and sanitation provided in developing countries.

Bonds can be issued by local water utilities by entering the capital markets. A key precondition for using this instrument is the existence of commercially viable projects to attract investors. In general, bonds are tradable debt where the risk is carried by the individual bondholder. There are several examples of Asian and African countries that have issued bonds on their domestic markets, and there is a large potential demand for such bonds in other developing countries (Hall and Lobina, 2009).

Private equity is a potential instrument for water utilities with sound finances, good cash flow and good credit. It is used where investors share the risks of the project in return for the prospect of sharing in its profits. This is usually the case for large urban utilities with financial autonomy and strong commercial status. There are rare cases of equity finance involved in water and sanitation projects in developing countries. Some financial institutions, including the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), can provide equity.

Levers are used to magnify the ability of future cash flow to attract repayable sources of finance. They can mitigate specific risks that would otherwise hinder financing or package the finance in a form that is more attractive to potential suppliers. The most important types of levers are the following.

- **Financial guarantees and insurance:** These offer insurance against specific risks for water and sanitation projects (e.g. default of credit, political risks). They are usually available from multilateral and bilateral development agencies and have a strong development impact. Guarantees work by mitigating specific risks, enhancing securities to take them over a critical threshold of creditworthiness, improving the terms on which borrowers and project sponsors can gain access to loans and investments, and giving lenders and investors exposure to previously unfamiliar markets and products.

- **Umbrellas of comfort and B loans:** Involvement of financial institutions in a water project may give an umbrella of comfort to commercial financiers and encourage them to get involved by providing so-called B loans.

CHAPTER 3

Types of blending projects

3.1 Sector blending portfolio

Water and sanitation projects are covered by all blending facilities. From 2008 to 2013, a total of EUR 313.4 million was allocated from the EU budget to water and sanitation projects under the blending facilities.

By type of assistance provided, 39% of the projects received technical assistance, 24% combined technical assistance and an investment grant, and 30% received an investment grant only. Interest rate subsidies and a combination of interest rate subsidies and technical assistance were used only in Africa in two projects.

The water and sanitation projects supported by the blending facilities can be broadly classified as[1]:

- infrastructure investment;
- institutional capacity building;
- integrated water management.

Descriptions and examples of these follow.

INFRASTRUCTURE INVESTMENT

These projects aim at rehabilitation, improvement, upgrade and/or extension or construction of physical water supply and sanitation infrastructure in order to improve access to safe drinking water and water sanitation services. Project examples follow.

- **Extension and rehabilitation of wastewater plants and pumping stations (STEP I and II) in Tunisia (EU investment grant EUR 8 million).** This project provides rehabilitation and extension of 19 wastewater treatment plants and 13 pumping stations throughout Tunisia. It aims to protect the environment and, in particular, to improve the sanitary and general living conditions of the local population of approximately 1.1 million people by 2021. The total project cost is EUR 127 million. The first EUR 3 million grant was approved in 2008; in 2009, the Tunisian authorities requested an additional grant of EUR 5 million to improve the project's overall financing conditions and its long-term financial sustainability. The KfW Development Bank is the lead financial institution, providing a loan of EUR 55 million; the project is co-financed by the Agence Française de Développement (AFD) with a loan of EUR 18.5 million.

- **Kesrwan wastewater project in Lebanon (EU technical assistance and investment grant of EUR 10 million).** The Kesrwan area in Lebanon is a densely populated area which is also a tourist and economic hub. Ninety per cent of the coastal population is connected to a poorly maintained sewer system, and there are no wastewater treatment facilities. As a result, the household, industrial and agriculture wastewater is discharged into the Mediterranean Sea and rivers. The project is part of the Lebanese National Action Plan for pollution reduction. It aims at improving the sanitary conditions of the population and de-pollution of the sea. It entails an upgrade and extension of the existing wastewater collection network in the city of Jounieh and the surrounding suburbs, and the

[1] Note that the boundaries between these types of projects are often very close, and many projects offer complex solutions.

construction of two new wastewater treatment plants and two sea outfalls (pipes that take the treated sewage out to sea, away from the coast). The EIB is the lead financial institution, providing a loan of EUR 70 million; the project is co-financed by the AFD with a loan of EUR 20 million.

- **Drinking Water Efficiency Programme in Morocco (EU technical assistance and investment grant of EUR 7 million).** The programme aims at securing a permanent drinking water supply in approximately 30 urban centres in Morocco. It is expected to reduce health risks through waterborne diseases caused by water pollution. Concurrently, the National Authority for Drinking Water is working on reducing drinking water losses in water production and distribution and optimising the efficiency of its operations. The project is closely linked with a previous National Sanitation Programme (also supported by the EU), which helps to improve the sewerage, sanitation and hygiene situation of 260 small urban centres. The initiative is in line with the country's European Neighbourhood Policy Action Plan, which puts particular emphasis on the protection of human health and the promotion of rational use of natural resources — especially sound management of water resources. KfW is the lead financial institution, providing a loan of EUR 40 million; the programme is co-financed by the AFD, with a loan of EUR 30 million. The total project cost is EUR 101 million.

INSTITUTIONAL CAPACITY BUILDING

These projects focus on increasing the organisational, financial and managerial capacities of water utilities and other relevant organisations. This focus includes planning, developing, financing and managing water supply and sanitation improvement projects. These projects have an investment component as well, improving the physical water and sanitation infrastructure. Project examples follow.

- **Moldova water utilities development programme (EU investment grant of EUR 10 million).** The programme focuses on financing six selected utilities structured as priority investments focusing on municipalities willing to adjust tariffs and introduce cost recovery for their water companies to ensure financial viability. This effort will include regionalisation of water companies by expanding their operations into neighbouring localities, thus providing access to investments in water and wastewater services for smaller communities in Moldova. Another purpose of the programme is to strengthen the municipal utilities to ensure provision of adequate supply of drinking water and improve wastewater services. Technical assistance (financed by a bilateral donor) will focus on a financial and operational performance plan to assist utilities in identifying and implementing necessary corporate, financial and operational improvements; implementation assistance on all aspects of procurement, contract administration, engineering supervision and disbursement to provide access to best practice in project and procurement implementation; as well as advice on specific technical issues. The total project cost is EUR 31.5 million. The EBRD is the lead financial institution, providing EUR 10 million loan; the EIB is co-financing the effort with a EUR 10 million loan.

- **Central Asian Technical Assistance Framework (EU technical assistance grant of EUR 7.3 million).** In many areas of central Asia, the environmental situation is unsustainable, with vast amounts of wastewater being discharged directly into the ground, rivers and lakes. The Technical Assistance Framework facilitates project preparation by financing, among others, feasibility studies, due diligence, project implementation support, corporate development and creditworthiness enhancement programmes. The EBRD is the lead financial institution, with an approximately EUR 300 million loan foreseen. Assistance provided will significantly reduce the time needed to prepare projects, thus limiting the risk of cancellations and cost overruns, as well as enhancing the positive environmental and financial effects. The project will also have a strong demonstration effect

INTEGRATED WATER MANAGEMENT

These projects focus on promoting, for instance, integrated water management solutions, taking into account the impacts of climate change, extending service to the poor, and the need for integrated solution with the participation of economic sectors for de-pollution of specific water bodies. They have an investment component as well, improving the physical water and sanitation infrastructure. Examples follow.

- **Integrated De-pollution Programme Lake Bizerte in Tunisia (EU technical assistance grant of EUR 5.8 million and EUR 9.2 million investment grant).** Lake Bizerte is a coastal lagoon connected to the Mediterranean Sea through a channel hosting the commercial port of Bozerte; and to Lake Ichkeul, a wetland designated as a Ramsar site and UNESCO-MAB reserve. There are several nearby urban agglomerations, with various industrial and commercial activities. Lake Bizerte is affected by industrial, urban and agricultural pollution. This project proposes an integrated solution to the pollution. It encompasses investment in four priority sectors, aimed at systematically eliminating or reducing all sources of pollution to minimise individual and cumulative impacts on the lake and coastal marine waters: wastewater, solid waste, industrial pollution and diffuse pollution. The investment is coupled with technical assistance that supports implementation and strengthening of the local institutional framework. The project further aims at supporting the socioeconomic potential of the region and creating employment. It provides infrastructure to reduce industrial pollution, upgrades for three wastewater plants and sewage network rehabilitation and extension, rehabilitation of an old solid waste dump site, and extension of an artisanal fisheries port. The technical assistance component provides support to project management, service contracts for design and supervision of works, feasibility studies and institutional support. The EIB is the lead financial institution, providing a EUR 40 million loan; the EBRD is co-financing with a EUR 20 million loan. The total project cost is EUR 90 million.

- **Mulonga Peri-Urban Water and Sanitation Action in Zambia.** This represents an investment in water supply and wastewater with a special earmarked EU grant for extension of services to the poor (ACP-EU Water Facility grant of EUR 5 million). The project provides an investment in water supply and wastewater with components, financed by the EU grant, specifically targeting the poor. The project consists of rehabilitating and expanding water and wastewater services provided by a local utility, Mulonga Water and Sewerage Company, by providing (i) capital investment for potable water production facilities and a distribution network as well as sewage network and wastewater treatment facilities; (ii) improving the efficiency of service provision, including metering; and (iii) expanding and improving water and sanitation infrastructure in low-income areas. The total project cost is EUR 156 million; it is being implemented by the EIB.

3.2 Uses of EU grants to support water and sanitation projects

PRIMARY JUSTIFICATIONS

The primary justifications for using an EU grant in the blending facilities include the following:

- to compensate for market failure by rewarding water and wastewater service providers for supplying public goods (public health benefits) and external benefits (reduced water pollution);
- to enable tariffs to rise gradually rather than precipitously to an economic level;
- to provide services at below-normal cost to special consumer groups, e.g. the very poor, large families or the disadvantaged;
- to support IWRM, including climate change impacts;
- to reduce bottlenecks in capacities of local authorities in order to enable project finance;

- to attract and leverage repayable and market-based sources of finance to support project financing;
- to lower transaction costs, covering particular forms of risk or improving the terms on which such funding can be made available,
- to mitigate specific risks by making lending or investment less risky through insurance or guarantees;
- to pool different sources of finance in a single financial package with better allocation of risks.

ROLE OF THE TECHNICAL ASSISTANCE GRANT

Almost 65 % of water and sanitation projects supported by blending facilities used an EU grant for technical assistance and/or complemented the investment grant with a technical assistance grant. The EU grant for technical assistance is usually used:

- to prepare the necessary project documentation, e.g. feasibility studies, cost-benefit analysis;
- to support the establishment and operation of the project implementation unit;
- to build the capacities of local authorities and improve their organisational efficiency;
- to improve the operation and maintenance of existing systems;
- to strengthen project management;
- to support the design and supervision of works.

Box 3.1 presents a project example for a technical assistance grant.

Technical assistance grants range from approximately EUR 1 million for a single location to EUR 10 million for more complex regional solutions.

BOX 3.1 Project example of a technical assistance grant

Study for wastewater sewerage of industrial zones in Tunisia (EU technical assistance grant of EUR 0.8 million)

This study aims at identifying the most appropriate solutions for wastewater treatment of nine industrial zones in Tunisia. Its objectives are to assess the existing institutional and infrastructural needs of the sector and to help prepare the related investments. Wastewater treatment is a major objective in Tunisia, given the importance of tourism for the economy. The project follows previous initiatives in the country and is expected to have a positive impact on the environment — contributing to de-pollution of the Mediterranean in line with EU objectives and the Horizon 2020 Initiative. KfW is the lead financial institution, providing a grant of EUR 0.8 million. The total project cost is EUR 1.6 million.

CHAPTER 4

Key issues in project development

The key issues in relation to developing water and sanitation projects can be summarised as:

- **Good governance in the water sector** is a precondition for the successful development of water and sanitation projects. It includes widespread reforms in policies, institutions, management and user behaviour. Placing water finances on a sound footing can only be accomplished when the sector as a whole is properly governed. Such critical issues as tariff reforms, efficient management of water services, the role of the private sector, pro-poor initiatives and affordability can only be addressed as part of a comprehensive policy framework.

- **Strategic financial planning** for water and sanitation services enables a long-term perspective of the sector's financial needs, the factors affecting the sector, the main sources of funds and the balance between them, and how needs can be reconciled with potential resources. All projects should be well anchored in national and local water sector strategies.

Key factors affecting investments in water service that need to be taken into account include geographical and hydrological features (climate); availability, quality and source of water resources; the level of economic and social development; the size and density of the area to be serviced; the status of existing infrastructure; the level of service; communal and/or commercial involvement; economic and financial viability; risk profile; and potential to attract the private sector.

Closing the financing gap is related to the following aspects:

- **managing costs**, i.e. improving the efficiency with which services are provided and adjusting the ambitions of the project through targets, levels of service and technical choices;

- creating a **sustainable financing system** by choosing basic sources of revenue and the balance between them, deciding how they can be developed and how they can be used to leverage other repayable funding sources;

- **allocating finance** efficiently and equitably within the water sector, by location and function.

The following issues also need to be taken into account when developing projects for blending facilities: (i) ensure development impact, (ii) avoid market distortion, (iii) take climate aspects into account and (iv) ensure sustainability. These issues are detailed in the remainder of this chapter.

4.1 Ensuring development impact

The development impact of water and wastewater projects is related to the long-term effects to be achieved by the blended project. The development impact of the water and sanitation sector is related to achieving MDG targets, contributing to poverty reduction by enabling the poor to have access to safe water and sanitation, contributing to inclusive growth by improving conditions for economic development, reducing water pollution due to improved sanitation, and improving broader socioeconomic conditions such as public health.

In the blending facilities, the expected development impact needs to be described in the project application form and accompanying guidelines document.

Table 4.1 presents an overview of output and outcome indicators for water and sanitation indicators, as well as cross-sector indicators.

4.2 Avoiding market distortions

Using subsidies for water and sanitation investments might increase the danger of market distortions; this could occur if subsidies are provided on a permanent basis. Therefore, subsidies, if used, should:

- be predictable, so water utilities can plan their investments and operations in advance;
- be transparent and appear clearly on accounts;
- be targeted, aimed at specific groups of the population considered to be in most need of relief (affordability problems) rather than spread across all consumers;
- sufficiently cover all necessary costs of water provision.

4.3 Climate aspects

Climate change is expected to affect the capacity of water systems to meet human and other needs while preserving resource quality and availability. The main climate change water impacts are expected in terms of shifting and more variable hydrological regimes (changes in water distribution around the world, changes in its seasonal and annual variability, increase in frequency of extreme events). This is a driver for water-related infrastructure: resilience in infrastructure becomes a factor in performance; adaptation to climate change will call for alternative plans, technologies and services.

The main aspects of adapting water services to climate change include the following:

- improve the quality of available resources through enhanced pollution abatement and wastewater treatment;
- allocate resources to where they add the most value — in regions of water scarcity, policy actions should be more rapidly implemented;
- manage demand, as increasing water productivity and efficiency, and improving conservation can reduce the need for new and expensive systems.

Water and sanitation sector projects can also be considered to contribute to climate change. Improvements in the efficiency of water systems (e.g. reduction of leakages, energy-efficient systems) contribute to climate change mitigation. Integrated water management, including flood management, contributes to climate change adaptation. Box 4.1 presents a relevant project example.

BOX 4.1 Project example related to climate change

Spanish Cooperation Fund for Water and Sanitation — promoting climate change adaptation and IWRM investment for the water and sanitation sector in Latin America (EU technical assistance grant of EUR 15 million)

This project aims at developing climate change adaptation plans, master plans and designs that will serve to catalyse new investments needed for their implementation. Climate change adaptation measures are becoming a prerequisite for new investments in most countries in the region; therefore, the project will help define specific strategies that will cover these requirements. Specific investment plans for adaptation actions and related technical policy support and infrastructure will be developed to address specific vulnerabilities to anticipated water stress and flooding impacts and related disaster risks. A second component of the project is aimed at IWRM. The total project cost is EUR 615 million, of which EUR 300 million will be financed by the Spanish Cooperation Fund for Water and Sanitation. The EU is providing a EUR 15 million technical assistance grant; a EUR 300 million loan will be provided by the Inter-American Development Bank.

TABLE 4.1 Impact indicators for the water and sanitation sector

INDICATOR	UNIT	DEFINITION
OUTPUT INDICATORS		
Length of new or rehabilitated water supply pipes	Kilometres	Length of water mains and distribution pipes installed/upgraded. All sizes of pipes intended to transport water for urban water use are expressed in their aggregate length in the network, irrespective of pipe diameter, comprising mains as well as reticulation pipes.
Length of new or rehabilitated sewer pipes installed	Kilometres	Length of collectors and sewers installed or upgraded. All sizes of sewer pipes are expressed in their aggregate length in the network, irrespective of pipe diameter, comprising mains as well as reticulation pipes.
New connections to water supply	Number	Number of new connections to the water network. Only new connections resulting from a project are counted; those already connected to the network and receiving improved services through a project are not counted.
Water treatment capacity	Cubic metres/day	Maximum amount of water that the new or improved treatment plant can process. This indicator reflects the total new or additional capacity of the treatment plant independent of its production during operation.
Wastewater treatment capacity	Cubic metres/day	Maximum amount of wastewater that the new or improved treatment plant can process. This indicator reflects the total new or additional capacity of the treatment plant independent of its production during operation.
OUTCOME INDICATORS		
Population benefiting from safe drinking water	Number of households	Urban or rural population using a safe drinking water supply, as defined by international standards.
Population benefiting from improved sanitation services	Number of households	Urban or rural population with access to improved sanitation services, as defined by international standards.
Potable water produced	Cubic metres/day	Amount of potable water produced, independent of the maximum capacity of the network.
Wastewater treated	Population equivalent	Amount of wastewater treated, independent of the maximum capacity of the treatment plant.
CROSS-SECTOR INDICATORS		
Total number of beneficiaries		Estimated number of people with improved access to water and wastewater services.
Number of beneficiaries living below the poverty line (i.e. whose conditions are improved by the project)		Sub-group of total beneficiaries above; the reference point used — e.g. national or international definitions of poverty — should be made clear.
Relative (net) greenhouse gas emissions impact		Average amount of greenhouse gas emissions induced, avoided, reduced or sequestered per year by the project during its lifetime or for a typical year of operation: net balance between gross emissions and emissions that would occur in a baseline scenario. In the case of water and sanitation projects, improved operations of water systems contribute to energy efficiency gains.
Direct employment: construction phase		Number of full-time-equivalent construction workers employed for the construction of the company's or project's hard assets during the reporting period.
Direct employment: operations and maintenance		Number of full-time-equivalent employees as per local definition working for the client company or project at the end of the reporting period.

4.4 Sustainability of projects and results

Sustainability should be addressed at two levels: sustainability of the project, and sustainability of the project results contributing to development objectives.

SUSTAINABILITY OF THE PROJECT

The choice of an **appropriate financial model** ensures the sustainability of projects over the long term. This model should be determined at an early stage of project preparation and take into account whether (i) the project is suitable for private sector participation, (ii) the physical assets should be in public or private ownership, or (iii) the project will have public shareholding or use a private company or private funding in the case of a public project.

Project preparation is important. The appropriate technical documentation developed in the project preparation stage increases project sustainability. It should take into account technical and economic optimisation studies; environmental and social impact assessments and licensing; and definitions of project structure, financing and procurement arrangements.

By **strengthening utility planning and management capacities**, project sustainability can be ensured, as the utilities will be able to operate and maintain the infrastructure after the project is finalised.

SUSTAINABILITY OF PROJECT RESULTS SUPPORTING DEVELOPMENT IMPACTS

Water and sanitation projects also aim to achieve development impact that is broader and longer than that of the investment project itself; this is referred to as sustainability of project results. It is addressed by the following questions, among others.

- Does the grant funding help support further or parallel activities to ensure that benefits continue beyond the lifetime of the project?
- Does the project lead to follow-up investments, and if so, under what conditions?
- Could the project results be transferred to other sectors or geographical areas?
- Does the grant funding contribute to structural reforms and/or support changes to legislation, regulation or policy?
- Does the grant finance enable demonstration effects for other participants in the marketplace?

CHAPTER 5

Risks and risk mitigation

Anything that can affect successful implementation of a project is perceived as a risk. Water projects tend to be considered high risk because an investor is exposed to the full cost of the project — in particular, all of the construction risks — before the revenue stream begins to flow.

The main types of risks for developing water and sanitation investments in the context of the blending facilities are described below.

- **Political risk:** This is often referred to as a country risk, and it includes the failure of the government to fulfil its obligations under project agreements — e.g. failure to provide the site or adverse changes in legislation. Usually this type of risk can be mitigated by using guarantees. It includes
  - expropriation;
  - political interference;
  - sub-sovereign agency and local stakeholder actions;
  - foreign exchange risk.

  Political risks can be mitigated by appropriate allocation of roles and responsibilities across responsible public authorities, and capacity-building and coordination mechanisms. Political risk insurance usually covers wars and civil disturbances, expropriation and confiscation, currency convertibility and transferability. Foreign exchange risk is usually covered through government exchange rate guarantees, and indexation of tariffs or local finance in local currency.

- **Commercial risk:** This threatens the anticipated revenue stream, despite the fact that the project is operating correctly — e.g. a lack of market for the services provided, or an enforced change in tariffs. Such risks can be partially insurable. Commercial risk includes the following water-related risks:
  - tariff affordability and resistance, project cash flow profile;
  - lack of financial sustainability (low tariffs);
  - credit and contractual risk;
  - performance risk, demand and markets, inappropriate technology;
  - information gaps, hidden costs and costs of inputs.

  Commercial risks can be mitigated through careful project design, including tariff structure design and appropriate due diligence; using partial credit guarantees and/or pooled financing to allow smaller locations to aggregate financing needs, diversify credit risk and spread transaction costs; or by introducing adequate regulation.

- **Regulatory/legal and contractual risk:** This includes the lack of an arbitrator or regulator; a weak legal framework, new standards and contract enforcement. They can be mitigated by developing a sound regulatory framework, a partial risk guarantee which covers breach of contract, changes in laws and licensing requirements.

- **Project risk:** This includes a wide range of project site–specific risks that might occur during the

construction, implementation and operational stages — e.g. cost and time overruns during construction, design and construction problems, delays due to environmental or social aspects. These risks are usually not insurable.

- **Water resource risk:** This includes water scarcity and reliability, water pollution, environmental liabilities, flooding, extreme events and climate change.

- **Reputational risk:** This includes compliance and disclosure pressures, corruption and business ethics, and responsiveness to local sensitivities and needs.

ANNEX

Case studies

The following case studies illustrate water and sanitation projects developed under blending with a special focus on the role of the EU grant in the context of EU policies and development objectives.

Case study 1: Water Infrastructure Modernisation in Georgia, Phases I and II

BACKGROUND

Following decades of underinvestment, conflict and political turmoil, much of Georgia's infrastructure is severely run down. The majority of urban water supply systems are more than 40 years old, and some date back to the 1930 and 1940s. Most of the pumps and equipment are at the end of their usable life. Many cities discharge raw sewage into nearby water bodies, while residents in several secondary cities use pit latrines and septic tanks, creating a serious public health issue. Water supply is unreliable, and severe water shortages are common: most customers receive water only two to six hours per day. Rehabilitation and improvement of water supply and wastewater collection is urgently needed, in order to ensure the minimal level of service. It has been estimated that the total investment needs to ensure acceptable levels of service in urban areas alone are EUR 1–2 billion.

One of the barriers to significant improvement and extension of service has been the fragmented nature of the water sector and the lack of a regulatory and financial environment to ensure appropriate funding of necessary investments at the local level. Georgia has commenced a radical reform process aimed at consolidating operational responsibilities in its water sector and reforming the regulatory framework. This process led to the creation of the United Water Supply Company of Georgia LLC (UWSCG). The UWSCG is 100% state owned and covers most of the territory of Georgia[1], providing water and wastewater services to around 6 000 legal entities and 600 000 private consumers.

The EIB and the EBRD both have facilities to provide loans for water and wastewater investments in Georgia. The recently created UWSCG lacks project preparation capacities and technical planning and implementation capabilities. It is in urgent need of technical assistance to ramp up its technical planning and supervise implementation of projects proposed for EIB and EBRD financing under their facilities.

The Government of Georgia has confirmed its commitment to ensure that all residents in all urban areas receive a reliable and safe water supply 24 hours a day at every household by 2020. The project is an intermediate step towards the ultimate goal of providing a water supply of acceptable quality to Georgia's urban population.

The project consists of two phases.

- **Phase I:** Technical assistance is provided to the UWSCG to prepare projects for investments to be suitable for EIB and EBRD loan financing.
- **Phase II:** An investment grant is provided to finance extension and upgrade of water and wastewater infrastructure, with a technical assistance component to support implementation supervision.

[1] With the exception of the Adjara Autonomous Republic and the cities of Tbilisi, Rustavi and Mrskheta.

PROJECT DESCRIPTION

The project enables financing of an EIB and EBRD portfolio of small and medium-sized water sector investment schemes under their facilities in some 30 towns throughout the service area of the UWSCG with a total investment cost of EUR 86 million.

The project's second phase focuses on implementation of much-needed water sector investment schemes throughout the UWSCG service area by upgrading the water supply infrastructure, connecting new users to the water supply network, ensuring a higher service level and reducing water losses in the network. Phase II is led by the EIB with co-financing from the Asian Development Bank.

The project includes rehabilitation, upgrade or new construction of water resource infrastructure, water transmission and distribution systems; upgrade of drinking water treatment facilities; wastewater collection systems; non-tertiary wastewater treatment facilities; bulk and consumer metering; water and energy efficiency measures; storm water drainage systems; plant and heavy machinery; diagnostic equipment; and modelling software and hardware.

OBJECTIVES AND DEVELOPMENT GOALS

Overall, the project aims to reduce public health risks and improve the quality of the environment by improving the quality of drinking water and wastewater treatment in the area served by the UWSCG. It looks to support the Georgian Government in its MDG commitment to halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. The Government of Georgia has confirmed its commitment to ensure that all residents in all urban areas receive a reliable and safe water supply, 24 hours a day, at every household by 2020.

Specifically, the project aims at:

- preparing water sector investment schemes that will further improve water supply and sanitation and thereby support the ongoing consolidation process of water service provision;
- implementing and providing water sector investment schemes throughout the UWSCG service areas by upgrading and extending water and wastewater infrastructure.

ACTORS AND STAKEHOLDERS

- The UWSCG is the key actor in the improvement of water sector infrastructure in Georgia.
- The project implementation unit is the Municipal Development Fund established under the umbrella of the Ministry of Regional Development and Infrastructure.
- The Ministry of Regional Development and Infrastructure ensures the Municipal Development Fund's effective and efficient internal control system for management of operations.
- The EIB is the lead financial institution.
- The EBRD and the ADB are co-financiers.

FINANCIAL PLAN AND ADDITIONALLY OF EU CONTRIBUTION

The total project cost is EUR 164 million with a Neighbourhood Investment Facility (NIF) grant contribution for the two phases of EUR 12 million for technical assistance and the investment grant (see Table A.1).

The technical assistance grant component will facilitate successful absorption by the Georgian water sector of a loan from the EIB and the EBRD with a high leverage effect. The UWSCG is in urgent need of technical assistance to prepare and implement schemes selected under the present EIB and EBRD facilities in a sound and timely manner. Initial design reviews will be used to define the technical-economic approach to be adopted in the prioritisation and detailed scoping of schemes under the proposed technical assistance. Sound preparation of schemes will be key to cost-effective use of loan proceeds and to achieve objectives such as improvements in water quality and energy efficiency. With technical assistance support, it will be possible to optimise the impact of the

TABLE A.1 Financial plan including EU contribution for water infrastructure modernisation in Georgia

FINANCIAL INSTITUTION	AMOUNT (MILLION EUR)	SHARE (%)	DESCRIPTION
PHASE I			
EIB	40	48	Loan
EBRD	25	30	Loan
International capital expenditure donor	15	18	Grant
EU contribution (NIF)	4	5	Grant
Total	84		
PHASE II			
EIB	40	50	Loan
ADB	32	40	Loan
EU contribution (NIF)	8	10	Grant
Total	80		

schemes in terms of sizeable economic benefits in water resource savings, reduced health hazards, and energy efficiency improvements as well as reduced uncontrolled discharge of untreated effluents to the environment. The technical assistance will also support capacity building (i) through knowledge transfer from the technical assistance consultants to UWSCG staff, and (ii) by underpinning ongoing institutional reform with sound investments in improving service quality in the water sector.

The Phase II grant contribution will help expand the water supply network, reducing water losses and installing new water meters. These steps aim at increasing efficiency and accountability in the sector, which should eventually enable it to become self-sustaining through adequate water tariff collections and discontinuation of state subsidies. The UWSCG will also benefit from a three-year management support contract, which should allow for optimising of operations and identifying potential areas for improved efficiencies.

CLIMATE CHANGE ASPECTS

Schemes concerning efficient water treatment, water distribution, wastewater collection and treatment together with rational sludge management contribute to climate change mitigation through (i) reconstruction and upgrading of existing infrastructure; and (ii) application of processes and equipment minimising electricity consumption, and primary or secondary carbon dioxide, methane and nitrous oxide emissions.

Schemes concerning new water resources and/or protection, capacity and extension of existing resources — as well as programmes for reduction of water losses from distribution systems, and infiltration and exfiltration into/from sewage systems — contribute to climate change adaptation through improved preservation, extension and protection of water resources of both surface and groundwater.

RISKS

The UWSCG lacks experience in project preparation and implementation; therefore, the technical assistance will assist in building needed capacities and thus mitigating the risk. Risk will also be addressed through the three-year management support contract financed by the ADB, and by engaging the Municipal Development Fund to run the procurement processes. At the same time, the Government of Georgia is putting strong pressure on the UWSCG to achieve rapid

project implementation; this urgency might jeopardise project quality. Adoption of a flexible time frame for project implementation is needed to achieve the acceptable project quality which is a precondition for loan disbursements. The risk of loan and grant misuse will be minimised by the direct control of the Ministry of Economic Development over the UWSCG. The procurement procedures acceptable to the banks and an enhanced level of project monitoring will be applied. The grant element of the project reduces the affordability risks and burden on the population, thereby increasing the investment's sustainability.

SUSTAINABILITY

The proposed technical assistance will be utilised for the preparation and implementation of schemes to be financed by a loan from the EIB and by a loan/grant package from the EBRD. By the end of the operation, the UWSCG is expected to have the capacity to autonomously operate the assets created under the facilities as well as to have a significantly improved capacity to undertake projects.

Project sustainability will be achieved when the UWSCG has sufficient revenues to cover at least operating and maintenance costs, but preferably also depreciation as reflecting the capital investment costs. In 2011, the UWSCG had almost covered its operating and maintenance costs; it achieved remarkable progress in cost coverage in the second year of operation. The ongoing installation of 80000 water meters will increase water users' accountability and reduce water wastage. This should reduce water supply expenses and increase tariff collection rates, which already now average at about the 90% level.

INFORMATION SOURCES

- Grant application form submitted to the NIF Board on 15 June 2010
- Grant application form submitted to the NIF Board on 25 October 2012
- NIF Activity Report 2008–2012
- EIB website, www.eib.eu

Case study 2: Integrated Water Resource Management in Colombia

BACKGROUND

Colombia is a highly urbanised country with 46 million inhabitants. It is rich in natural resources, thanks to the wide variety of geographical environments. Access to drinking water was 99% in urban areas and 73% in rural, and has been improving steadily since 1990. The high access rate masks discontinuities of water supply throughout the day. Access to wastewater treatment was 81% in urban areas and 55% in rural areas. Water resources are abundant throughout the country. The quality of the resources, in particular surface water, is strongly degraded by domestic and industrial pollution generated by the major cities; this leads to tensions and conflicts among water users, particularly in arid altitude areas close to large cities.

The main tool for planning and implementing projects in the water sector by *corporaciones autonomas regionales* (CARs) is the management plan of river watersheds. The plan is based on a quantitative and qualitative diagnosis of resources and uses in the watershed, in order to propose coordinated action plans to be implemented by all stakeholders in the sector including the municipalities. In some cases, CARs carry out investments in the water sector; in other cases, they subsidise the municipalities for investment completion. Watershed management plans have been prepared for only about 20% of watersheds and often do not take into account risk management aspects, e.g. flood risk.

There is a need for an IWRM policy for the country which would address (i) regulation of the flow of watercourses through preservation of altitude ecosystems, (ii) improvement of water quality through sanitation, and (iii) participatory management in the context of local disputes on water issues.

PROJECT DESCRIPTION

The project consists of three components:

- budget support policy for IWRM which will be used to implement the IWRM policy, especially through investments;
- monitoring implementation of the IWRM policy through key indicators, to assist in developing a report on policy implementation with a number of specified indicators;
- technical cooperation.

OBJECTIVES AND DEVELOPMENT GOALS

The overall project objective is to contribute to the protection of the environment (improvement of the quality of water resources) and improve the availability of the water supply to the population, which will reduce water-related conflicts among the locals.

Specifically, the project seeks to support development of the IWRM policy and accompanying implementation of the Horizon 2014 IWRM hydrological plan and providing a financing framework for water sector investments aimed at:

- ensuring that the river watersheds selected for carrying out actions have been prioritised;
- providing CARs with adequate technical and financial means;
- integrating risk management in the development plans of river watersheds;
- ensuring implementation of participatory management of river watersheds through watershed committees;
- equipping the Institute for Hydrology, Meteorology and Environmental Studies with effective monitoring tools in the priority areas.

ACTORS AND STAKEHOLDERS

- The National System for the Environment has a role of the Ministry of Environment dealing with legal and regulatory issues. It is responsible for the management and preservation of the environment and renewable natural resources.
- Thirty-three self-governing CARs are responsible for management of the environment on their territories.
- Select municipalities will be the sites where actions will be implemented.

FINANCIAL PLAN AND ADDITIONALLY OF EU CONTRIBUTION

The contribution from the Latin America Investment Fund (LAIF) is necessary to scale up the technical assistance and implement a pilot project that will be a reference for IWRM implementation. The project will establish a sector policy framework favourable for investments. Watersheds are part of the environmental goods and services providing economic benefits for various sectors in the country, which generate positive externalities.

The LAIF contribution of EUR 4.5 million corresponds to 3% of the total project cost. It targets the third component of the project and will provide:

- technical assistance to the Ministry of Environment (EUR 1 million);
- implementation of the water resource management plan with pilot investments (EUR 1.6 million technical assistance and EUR 1.2 million investment grant);
- communication about IWRM (EUR 0.3 million);
- support to the ministry in implementation of the project (EUR 400 000).

The LAIF grant will improve the global financing conditions of the project and allow rapid implementation. It will play a catalytic role and allow full implementation of the IWRM policy in a pilot watershed, which will serve as a reference for other watersheds. It will also support the ministry at the strategic level and ensure that priority objectives are properly set (see Table A.2).

TABLE A.2 Financial plan including EU contribution for IWRM in Colombia

FINANCIAL INSTITUTION	AMOUNT (MILLION EUR)	SHARE (%)	DESCRIPTION
AFD	78.8	55.5	Loan
Development Bank of Latin America	59.0	41.5	Loan
Agence de l'eau Adour Garonne	0.2	0.14	Grant
LAIF	4.5	3	Grant
Total	142.5		

CLIMATE CHANGE ASPECTS

The project contributes to climate change adaptation through regulation of the water flow of watercourses and reduction of inequalities in water resource allocation throughout the territory.

RISKS

The main potential risk, as identified in the project application form, is that the Colombian Government will not implement the policy. However, the risk is reduced by the state's strong commitment to carry out the reform, and an annual report which will measure implementation of the strategy and the implementation of a technical assistance.

INFORMATION SOURCES

- LAIF Application Form 15 June 2012
- Annex to the EU Delegation Agreement on the contribution
- AFD PowerPoint presentation on the project

Case study 3: Lake Victoria Water and Sanitation Initiative

BACKGROUND

Lake Victoria is a water resource shared by three countries — Kenya, Tanzania and Uganda — with multiply economic uses. The lake is the most important trans-boundary natural resource on the African continent and the sole source of water supply for the many communities living on its shores. As such, it is subject to multiple pollution and hydrological pressures. Lake Victoria's levels are highly sensitive to land use in its catchment, the operation of hydroelectric power stations and precipitation. In that regard, East Africa is drought prone, with reduced rainfall in recent years. The lake region is experiencing rapid population growth. Every year, hundreds of thousands of people come from throughout the region and live in informal settlements in the hope of finding a job in a factory, fisheries or tourism. Consequently, towns emerge spontaneously without any real planning or adequate water or wastewater facilities. The pressure on the lake ecosystem is increasing, as is the risk of waterborne diseases.

The lake region is a key area of development and urbanisation. Its operation is of a regional nature, as part of the Regional Lake Victoria Water and Sanitation (LV WATSAN) Initiative of the East African Community.

PROJECT DESCRIPTION

Three financial institutions (the EIB, the AFD and KfW) are pooling their lending with grant support from the EU-Africa Infrastructure Trust Fund (ITF) in order to tackle pollution of the lake. The three institutions are first concentrating on the three largest towns on the lake: Kampala (Uganda), Mwanza (Tanzania) and Kisumu (Kenya) (see Table A.3). Each financial institution will be the lead financier on one project; the EIB will take the lead for Tanzania, and the AFD will be responsible for the Kenya project. In Uganda, work has already started under KfW's lead to upgrade the run-down water network and existing water treatment plants.

The project activities contribute to LV WATSAN. LV WATSAN is a combination of physical investment projects and capacity-building measures to support viable and pro-poor water and sanitation services in the Lake Victoria Basin. Until now, LV WATSAN has focused on small towns, investing in 10 towns in Uganda, Kenya and Tanzania with funding mainly from the Dutch government. A second phase for an additional 15 towns is presently under study with potential funding from the African Development Bank. In 2008, the national governments began considering scaling up LV WATSAN to larger cities, focusing on the low-income areas where the most urgent needs exist for improved water and sanitation services. This project is a response to the need to address water and sanitation problems in larger cities.

OBJECTIVES AND DEVELOPMENT GOALS

The overall objective of the project is to improve the health situation of people living in the lake zone by increasing both the supply of affordable drinking water and reducing the risk of waterborne disease.

The use of grants and interest rate subsidies are justified by the strong pro-poor MDG focus and environmental character of the investments, the need to safeguard the affordability of investments to populations, and accelerate investments and achieve financing terms compatible with the obligations under each country's debt management strategies. The project will make available best technologies and their dissemination through water operator partnerships around Lake Victoria.

In Tanzania, the project aims to expand and upgrade water supply and sanitation in six cities around Lake Victoria. In Uganda, the project seeks to upgrade and rehabilitate the existing water treatment and distribution systems as well as develop a new water system and wastewater treatment in Kampala. The project will address emerging water deficits in the city, high technical losses, non-revenue for water as well as facilitate access to water and sanitation for the urban poor.

ACTORS AND STAKEHOLDERS

- The Lake Victoria Basin Commission is charged with overall political coordination under the East African Community. LV WATSAN is embedded in regional institutions through partnership and support from the East African Community.

TABLE A.3 Lake Victoria project summary, by country

KAMPALA (UGANDA)	MWANZA (TANZANIA)	KISUMU (KENYA)
The ITF is supporting the Kampala project with two grants, a technical assistance grant of EUR 8 million for expert services to the National Water and Sewage Corporation and an interest rate subsidy of EUR 14 million for subsidising the AFD loan to the project.	The Mwanza project will also benefit from two ITF grants, one of EUR 7 million to support technical assistance for the water supply and sanitation authorities. The other is an interest rate subsidy of EUR 10.7 million for EIB loan financing to reduce the financial cost borne by the Government of Tanzania.	The Kisumu project is still in the pipeline for future ITF support.

- The national governments, utilities in each town and town councils are responsible for implementing the investment projects.
- The EIB, KfW and the AFD are providing financing.

FINANCIAL PLAN AND ADDITIONALLY OF EU CONTRIBUTION

Mwanza, Tanzania — Lead financier: EIB

The technical assistance grant from the EU (EUR 7 million) will be used for:

- preparatory studies — master planning and design review for Mwanza and master planning for Bukoba;
- assistance to utilities to improve commercial, operational and financial performance and support to the project implementation units;
- facilitation for sanitation in informal settlements in Mwanza;
- water quality investigations

The EIB technical assistance via the investment facility (EUR 3 million) will be used for overall project coordination, reporting and administration and assistance to the project implementation units (within utilities) on procurement and disbursement (see Table A.4).

Kampala, Uganda — Lead financier: KfW

The grant for interest rate subsidies will be used to blend with the AFD's own resources and grants from the French Government in order to achieve terms compatible with the integrated debt strategy for the Government of Uganda (see Table A.5).

The technical assistance grant will be used for:

- detailed design of rehabilitation and upgrading of the Gaba water treatment plant complex, optimisation of the treatment process and sequencing of implementation, and preparation of the detailed design and tender documents;

TABLE A.4 Financial plan, including EU contribution for Mwanza Tanzania

FINANCIAL INSTITUTION	AMOUNT (MILLION EUR)	SHARE (%)	DESCRIPTION
EIB/AFD	90	85	Subsidised sovereign loan
Government of Tanzania	14.5	15	Grant
EU contribution (ITF)	10.7 + 7		Interest rate subsidy + grant
Total	104		

TABLE A.5 Financial plan, including EU contribution for Kampala Uganda

FINANCIAL INSTITUTION	AMOUNT (MILLION EUR)	SHARE (%)	DESCRIPTION
KfW	40		Loan
AFD	64		Loan
EIB	70		Loan
KfW	10		Grant
EU contribution (ITF)	8 + 14		Grant + interest rate subsidy
Government of Uganda equity	30		Equity
Total	236.7		

- consolidation of water and wastewater master plans;
- hydraulic baseline investigations and feasibility study.

The project is a joint regional response to lake pollution and human health concerns through improving water and sanitation services. The regional impact of the project can be demonstrated as follows.

- **Same resource:** the Lake is a resource shared by three countries.
- **Shared problems:** Rapid urbanisation and population growth (4%) overwhelming utilities and accelerating deterioration of lake water quality.
- **Same objectives towards MDGs:** Increasing access to clean water and improved sanitation in low-income areas.
- **Same regional institutions:** East African Community acting as an umbrella in the promotion of different economic and environmental initiatives in Uganda, Tanzania and Kenya.

The technical assistance will ensure that all measures are put in the context of a coordinated planning approach for urban development, water and sanitation as well as optimisation of existing infrastructure, thus maximising value and coverage. A coordinated approach with review of existing designs will allow acceleration of key project components. The technical assistance will also bring needed improvements to operator capability in wastewater systems, which are currently at a low state of development, as well as tailoring of approaches to low-cost sanitation and general improvement of the financial sustainability of utilities. The technical assistance will also ensure regional dissemination of approaches and lessons learned in lake water quality and approaches to informal settlements.

CLIMATE CHANGE ASPECTS

The project area is highly vulnerable to climate change. The project itself aims at creating more climate change–resilient basic services for the population and reducing pollution pressures on the shared resource. A significant institutional component aims at operational efficiencies at the level of water utilities as well as at increasing the understanding of water quality trends in the lake. The principal objectives of the project support increased climate resilience and the adaptive capacities of communities and institutions, with the adoption of better planning and more resource-efficient practices in the delivery of basic services, which also contributes to climate change mitigation.

RISKS

There is a high risk related to the coordination of several stakeholders of different natures that could cause delays in project implementation. The technical assistance for management will help address this risk. Project implementation is challenging due to the fact that water and sanitation are new activities for some of the utilities. The beneficiaries of the project are utilities with different profiles in need of specific solutions. The investment programme will need to be closely followed up and coordinated by a lender's supervisor on site. Climate risk derives from population migrations, energy insecurity and economic shocks as a result of water availability in the wider region as well as the synergies of human and climatic effects on lake quality, ecology and levels. The design of water intakes will incorporate consideration of lake level fluctuations as well as optimal location from a quality point of view. Treatment processes will need to take into account the possible need for future retrofitting in relation to potential negative raw water quality. The operational improvements of water and wastewater systems will increase their efficiency and resilience to disruptions. Improved water quality monitoring will allow better preparedness for possible water quality risks. Forward-looking and integrated urban planning for each of the project locations will further enhance understanding and suitable responses to specific local climate vulnerabilities.

SUSTAINABILITY

The project will result in improved performance of utilities by increasing their operational sustainability,

understanding of water quality trends in the lake, better management of billing and collection, improved coverage of operation and maintenance costs, and updating of utility business plans with a view to establishing tariffs that cover costs and contribute to the long-term financial sustainability of the utilities.

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