



Water Infrastructure Finance Constraints:

Shared lessons
from Africa and Europe



This paper builds on the lessons learned from the authoring partners and provides recommendations to help direct further efforts to unlock barriers to providing sustainable financing solutions for water infrastructure globally.

The financing and development of water infrastructure is foundational to achieving the world's Sustainable Development Goals (SDGs). Recent studies have raised the alarm that, despite efforts, the global community is **not on track** to achieve the water and sanitation targets outlined in SDG 6. Funding gaps to meet water infrastructure needs are present globally, and the estimated investment to achieve SDG 6 targets requires a 'threefold increase in existing levels of investment (SIWI, 2018)'.

The Organisation for Economic Co-operation and Development (OECD) projects that global financing needs for water infrastructure will range from 6.7 trillion USD by 2030 to 22.6 trillion USD by 2050 (2018). The African water infrastructure landscape is also afflicted by inadequate investment finance into the sector. According to the African Development Bank (AfDB), the continent's overall infrastructure needs amount to 130–170 billion USD per annum; and with the commitments made by governments, private investors, multilateral development banks, there still exists a financing gap of 67.6–107.5 billion USD. Further, of the 75 billion USD commitments to Africa's infrastructure between 2012 and 2016, water and sanitation received just 17 per cent. Commitments to the water sector did increase substantially from 7.5 billion USD in 2015 to 10.5 billion USD in 2016, with the majority of the water sector commitments coming from African governments who allocated 4.4 billion USD (AfDB, 2018).

Relatedly, a 2018 Swedish study by the Swedish Investors for Sustainable Development (SISD) network found that while about 12 billion Swedish kronor (1.3 billion USD) are invested in the Swedish water sector, there is a current need for almost double this investment (AP7, 2017).

Across the world, north and south, as medium and large-scale water infrastructure works are developed at national and regional levels, applying innovative financing mechanisms and integrated thinking to overcome key water governance challenges will be essential to closing the water infrastructure financing gap. Lessons learnt to unlock barriers to providing sustainable financing solutions for water infrastructure globally described in this paper were drawn from the African EU Water Partner-

ship Programme (AEWPP) process of identifying and addressing barriers to financing through practical support to select water infrastructure projects across the African context, as well as research on this theme undertaken in Sweden and OECD countries. This comparison and contextualization between European and African experiences was first presented during the 2018 World Water Week Showcase 'Water Finance Constraints: Africa and Sweden' (August 2018) which included a dynamic World Café discussion with key experts and project sponsors adding further insights from African and European contexts¹.

Challenges identified are typically project identification, prioritization, and preparation; resulting in slow development and implementation of water infrastructure projects. Specifically, challenges were identified across the following broad areas:

- **Insufficient long-term capital planning,**
- **tariff setting challenges, and**
- **human resources management challenges.**

Challenge: Insufficient Long-Term Capital Planning

The water sector has two distinct professions streams, technical and financial, that are critical for the successful delivery of sustainable services. Whilst the engineering functions typically engage in long-term planning, it is increasingly important for the finance functions to improve long-term capital planning. Best practice in financial governance requires the consideration of a range of alternative procurement and financial structuring options that will support the development of financially sustainable utilities.

The identification and prioritization of projects, within a long-term planning scenario, should be considered both from a technical and financial perspective. The initial evaluation process of all projects, regardless of a proposed procurement methodology, should be based on an eco-

nomically cost-benefit analysis. Projects should then be prioritized, whilst the pre-feasibility process will assist with an early evaluation of a relevant procurement process.

It is fundamental in this evaluation process to consider the life-cycle costs of a project. The outcomes of the life-cycle cost evaluation process will lead to better decision making regarding the most appropriate procurement option, be it a traditional procurement, Public-Private-Partnerships (PPPs) based project, or other. Alternative procurement methodologies including PPPs, performance-based management contracts, affermage, lease, design-build-operate and maintenance contracts represent tried and tested options, including in the African context. The special purpose companies inherent to PPP transactions, similar to traditional procured infrastructure during the financial structuring phase, make use of blended finance solutions ensuring value for money required by the government sponsors. Today, most African countries, according to the World Bank, have either PPP policies and/or a PPP Act which has nurtured significant progress towards improved understanding and regulatory certainty by all relevant actors (Vallée, 2018).

Additionally, water utilities find it increasingly difficult to take on debt to finance infrastructure developments. Creditworthy water utilities need to fully apply the principles inherent to long-term capital planning. This in effect translates to finance directors strategically and operationally making use of a variety of financial instruments that may include both on-balance sheet and off-balance sheet based financial products. Long-term loans and bond instruments represent on-balance sheet exposures whilst export credit facilities, provided by the export credit agencies, represent a good example of an off-balance sheet financial structuring facility. Add a mix of grants, government, and or external grant funds into the structuring package and the utility has a well-structured blended finance solution. The KIFFWA-Miraadi Bulk Water Supply Project Case Study (see box) illustrates the benefits of long-term capital planning and blended financial structuring to ensure financial sustainability.

Challenge: Sustainable Tariff Setting

The 2018 Global Water Leaders Group in partnership with Arup's world-wide water tariff survey indicated a 3.8 per cent year-on-year increase in water tariffs (Global Water Leaders Group, 2018). Wastewater prices specifically are rising faster than water prices globally, pushing bills up around the world. Basic guaranteed water standards must be affordable to all persons to respect and advance the human right to water while sufficiently recognizing and accounting for the diverse values of water (economic, environmental, cultural, social etc.).

Sustainable tariff setting remains a highly complex and politically charged issue. If tariffs are placed at a level

Case Study Solutions:

KIFFWA-Miraadi Bulk Water Supply Project

Contributed by: Joseph Murabula, CEO, Kenya Innovative Finance Facility for Water (KIFFWA)

The KIFFWA-Miraadi is a bulk water supply project intended to deliver on 4 Sustainable Development Goals – SDG 1 (no poverty), SDG 2 (zero hunger), SDG 6 (clean water and sanitation) and SDG 13 (climate action).

The project was initiated purely as a bulk water supply project to address the water supply gaps of the local water utility. The initial feasibility study proved technical feasibility, but the project failed to attract investors due to a single digit projected internal rate of return.

This challenge was addressed by structuring the project to include additional irrigated agribusiness and red meat components. To further augment the financial return, a blended financing model was introduced involving a convertible grant in the project development phase, technical assistance for project structuring, and a long-term loan in the construction phase. These measures enhanced the return to double digits and helped attract investors to enable the project to proceed.

AEWPP has partnered with the KIFFWA-Miraadi Project to address the capacity challenges within the Tavevo water utility in structuring and negotiating the bulk water supply agreement between the Private Party and Tavevo to ensure long-term financial sustainability of the utility. AEWPP has also assessed the project and its institutional structure to augment the creditworthiness and attract financial investors.

high enough to be cost reflective and provide an income stream for continued investment in water networks then, typically, water use per consumer drops – leading to an eventual drop in revenue for the water utility. If the tariffs are raised further to offset the drop in water use, then resentment amongst consumers can grow, leading to reticence to high prices at the political level. Likewise, if tariffs are set too low, then user fees do not cover the operational and or capital costs of the water utilities leading to the failure of the utilities and or the water utilities inability to deliver proper services to all of its communities including the poor. These tariff challenges also have a direct influence on the credit-worthiness of utilities and represent a key reason why utilities are often unable to qualify for debt from both commercial and development

¹ For further details on this event as well as supporting reference and summary documents please visit: <https://programme.worldwaterweek.org/event/8097-water-finance-constraints-africa-and-sweden>



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Furthermore, these challenges are exacerbated by inefficient financial management, specifically referring to the billing and collection of tariffs. Technology now makes it possible for utilities to improve their financial governance and to collect an increasing percentage of bills issued.

Emerging from a severe drought in 2018, the city of Cape Town, South Africa, recently saw strict water restrictions placed on consumers and a substantial increase in tariffs. However, it has proven politically difficult to lock in tariff changes in consumer behaviour through long-term price increases. The policy of the city government is that prices will revert to roughly their pre-drought level once the dams reach 85 per cent capacity. Expectations are that many other mega cities will need to grapple with similar challenges in the near future. It is clear from Cape Town's experience that water tariff solutions need to be coordinated and complemented by other types of policy instruments (laws, public awareness, standards).

The Songwe River Basin Development Cooperation aimed to balance these economic and social valuation considerations around water tariffing as described in the included case study (see box).

Challenge: Human Resources management

The water sector is struggling with human capacity deficits at all levels (municipal, national, regional, and global), resulting in challenges to manage water infrastructure and undertake long-term strategic planning. The water sector has proved difficult to attract the needed skills and competencies both in developing and developed country contexts. Many intersecting factors contribute to this challenge.

High levels of retirement have been seen across all ranks and skill sets in the sector, often responded to with tra-

Case Study Solutions:

Songwe River Basin Development Cooperation

Contributed by: *Eng. Gabriel M. Kalinga, Head of Interim Secretariat of Songwe River Basin Commission (Tanzania/Malawi)*

Kasumulu is a small town located within the area of the Songwe River Basin Development Programme (SRBDP) on the Tanzanian side at the border with Malawi. Water supply services in the community are poor due to mismanagement and an aging water supply infrastructure. The current system was designed to be used for 30 years and it is now 34 years old with significant deterioration. The water tariffs applied within the community were set by Energy and Water Utility Regulatory Agency (EWURA) of Tanzania in 2010. The water users committee currently resists the establishment of a new water tariff regime, as well as making payments at the existing tariff rate, claiming that the water supply infrastructure should be improved by the government first before constituents are required to pay for the water related services. Furthermore, the user committee holds that water should be considered 'a free gift from God' accessed freely as a social good.

In collaboration with the Climate Resilient Infrastructure Development Facility (CRIDF) the Tanzanian Government is now undertaking a prefeasibility study towards improvement of the water supply infrastructure and identifying additional water sources. This study is an intermediary measure being advanced as a complement to the long-term measures to be implemented under the SRBDP once the Lower Songwe Dam and Hydropower Plant Project are completed. Under the SRBDP water supply projects for small towns around Kasumulu (Tanzania) and Songwe (Malawi) will be implemented, tapping water from the Lower Songwe dam reservoir after producing hydropower (180.2MW).

The Songwe River Basin Development Programme (SRBDP) is a 10-year programme with integrated industrial irrigation, water supply, and hydropower schemes which jointly aim to enhance food and energy security for the basin communities in the context of the overall socio-economic development of Malawi and Tanzania. The SRBDP and specifically its Irrigation and Drainage scheme participants will be required to pay a fee for water provided from the new dam through the canals being planned. It is unsure what the level of these fees will be, but it is important for the project transaction advisors to consider both the economic and social parameters. Calculating these fees and communicating the importance of cost recovery to stakeholders, through a fee structure, is critically important. The AEWPP is working with the SRBDP in developing a commercially sound business model for the agri-businesses that will underpin the irrigation schemes along the Songwe River.

ditional stopgap methods such as hiring retirees as contractors or consultants, outsourcing, or through an adjustment in work force planning (with staff having multiple responsibilities). Declining numbers and quality of middle management have created bottlenecks to implement decisions taken at the executive level. At the entry level, limited opportunities for generating profits in the public sector can restrict potential salaries and entry of skilled professionals in the sector. Further, the localized nature of water provision challenges small municipalities in rural areas to attract younger qualified professionals who may prefer to work in metropolitan settings. Finally, there is a noted lack of appropriate new skillsets within the project sponsor institutions to adapt to trends; specifically, project management skills to properly contract with private sector on long-term basis, and financial and asset management skills.

Water utilities world-wide have already made significant use of the private sector for the delivery of infrastructure, as well as water related services. Traditional contracting with the private sector takes place using short term contracts with little or no performance requirements. Globally, this trend is changing with utilities considering the use of longer-term performance-based contracting. New skillsets are required at the project sponsor level to effectively conceptualise, tender, close, and monitor these dynamic contracts. It is clear that water utilities, now driven significantly by new technologies, will have to apply modern asset management and financial structuring principles to limit operational costs and to become efficient and sustainable. Best practise determines an annual decrease in operational costs versus the traditional maximum allowable increase in operational costs.

As a result of these human resource management deficits, water sector governance does not provide for the sustainable management of water utilities. Water users across the spectrum, corporations, manufactures, and individuals are not receiving services due to limited capacity and traditionally conservative approaches. Water utilities are obliged to enhance capacities of internal staff and or appoint professional transaction advisors such that they are able to identify and prioritize relevant projects, develop and complete feasibility studies, procure and contract service providers, monitor implementation throughout the construction period, and in the case of a PPP procurement process, monitor the implementation phase until the hand back of the asset at the end of the concession, in a pre-determined state.

It has become apparent that project development by a third-party government, or quasi government entity that has minimal interaction with the responsible government entities, does not automatically lead to the creation of a sustainable utility. It is for this reason that the capacity building of the responsible government entity becomes essential.

Human resource deficiency challenges are not restricted to the African context but can be found throughout the water

sector globally. In Sweden these challenges were identified by the recently released study by the Swedish Investors for Sustainable Development (SISD) network as illustrated in the case study (see box; AP7, 2017).

Case Study Solutions:

Water capacity deficits in Sweden

Contributed by: *Charlotta Dawidowski Sydstrand, AP7*

In 2017, the AP7, AP3, Skandia, the Church of Sweden and SPP commissioned a study on barriers to investing in water infrastructure in Sweden (AP7, 2017). The group of investors focused on SDG 6 within the Swedish International Development Agency's (Sida) supported Swedish Investors for Sustainable Development (SISD) initiative. During their discussions on how to contribute to the fulfillment of SDG 6, it became clear that although there are high needs for investment in Swedish water infrastructure, there is a lot more investment-willing capital than there are investment ready opportunities in the water sector.

The study raised two questions. Why are there not more projects to finance within the water and sanitation sector in Sweden? And is there anything that can be done to increase the number of such investment opportunities?

The main conclusions of the study, based on literature studies as well as interviews with local politicians and experts in the field, were:

1. Swedish municipalities are unwilling to borrow due to existing levels of debt. However, water infrastructure which is financed by tariffs, could be kept separate from other debt of tax-financed activities, instead of being included in total debt.
2. Investment in new infrastructure tends to override maintenance of existing infrastructure.
3. Private ownership of water and sanitation infrastructure is not legal in Sweden. Water and sanitation are exclusively the responsibility of municipalities. Private operation is possible, but not economically interesting since all surplus income must be reinvested.
4. Increased tariffs are not popular with voters. Further, there is low public awareness and willingness to pay for water services.
5. There is a lack of capacity at all levels. There is a high demand for consultants, contractors and qualified staff. It is difficult for small municipalities to attract and maintain competence. This lack of capacity is partly responsible for the lack of attention given to the maintenance needs of water infrastructure.

Recommendations: Integrative and innovative financial solutions are needed to meet Sustainable Development Goal 6.

The below recommendations are drawn from practical engagements of the authoring bodies in supporting water infrastructure development in Africa and Sweden, as well as recommendations from stakeholders elevated during the public discussions at SIWI's World Water Week 2018 in relation to the three challenges discussed in this issue paper.

- Increase human resource management capacity for long-term capital planning at the level of the responsible government entity to evaluate life-cycle project costs and utilize and manage alternative procurement processes.
- Ensure integrative long-term planning around the three sources of finance for water supply, tariffs, transfers and taxes, to enable the continued expansion and maintenance of water networks.
- Establish tariffs reflective of the values of waters (economic, environmental, social, cultural) while ensuring basic guaranteed water standards for all.
- Mainstream new technologies to improve asset management and financial governance of water utilities.
- Increase private sector participation in the delivery of water infrastructure and related services through long-term performance-based contracting.

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The Africa-EU Water Partnership Project (AEWPP) is a joint undertaking by the European Union, the African Ministers Council on Water (AMCOW) and the Government of Sweden through Sida that aims to enhance the financial viability of water infrastructure projects in Africa by making more public and private capital accessible for water-related infrastructure projects and encouraging and supporting African governments to invest in water governance through capacity building. AEWPP is financed by the European Commission and project implementation is assigned to the Stockholm International Water Institute (SIWI).

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About SIWI

Stockholm International Water Institute (SIWI) seeks to strengthen water governance for a just, prosperous and sustainable future.

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SONGWE RIVER BASIN DEVELOPMENT PROGRAMME
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