Water Tariffing:
What's at stake?

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Local access to clean, safe water is essential for community health, well-being and economic development, with direct implications for the promotion of gender equality, education, and peacebuilding. However, great strides still need to be taken in order to bring Africa's water services to a sufficient level to meet international policy goals for local community needs.

The significant deficit in Africa's water infrastructure is reflected in the growing market for non-utility water services, such as tankers and other non-pipe water deliveries, which is estimated to be around $7 billion per year and growing at the rate of 12% per year (Global Water Leaders Group and World Economic Forum, 2017). The growth in this market is stimulated by rapid urbanisation with which utility services cannot keep up.

However, the economic case to rectify is clear. The World Economic Forum in collaboration with the Global Water Leaders Group have demonstrated that $217 billion a year is spent on water and wastewater utilities in low income countries, but inadequate access to water and sanitation inflicts losses of $384 billion on the global economy (2017). Put simply, remaining with the status quo of deteriorating water infrastructure is bad business.

The question follows: how can water utilities in Sub-Saharan Africa plan to achieve this more efficient, less burdensome, financially healthy sector which will support the achievement of the Sustainable Development Goals (SDGs), particularly Goal 6, in a timely fashion? What's at stake for appropriate water tariffing?

The fastest pathway to long-term sustainability, even prosperity, of the water utilities sector is establishing good performance in the present-day. Good governance, and financial governance as part of this, is key to unlocking the water utility sector's potential to become a sustainable and modern service industry.

Good Governance, Good Tariffs

Tariffs form the basis of good financial governance because they complete the socio-financial contract between water service provider and water user. They enable the utility to cover its operational costs and should make provision for capital expenditure.

Once initial financial stabilization of the utility is established, baseline bankability can be proven. This is important because bankability enables a utility, like

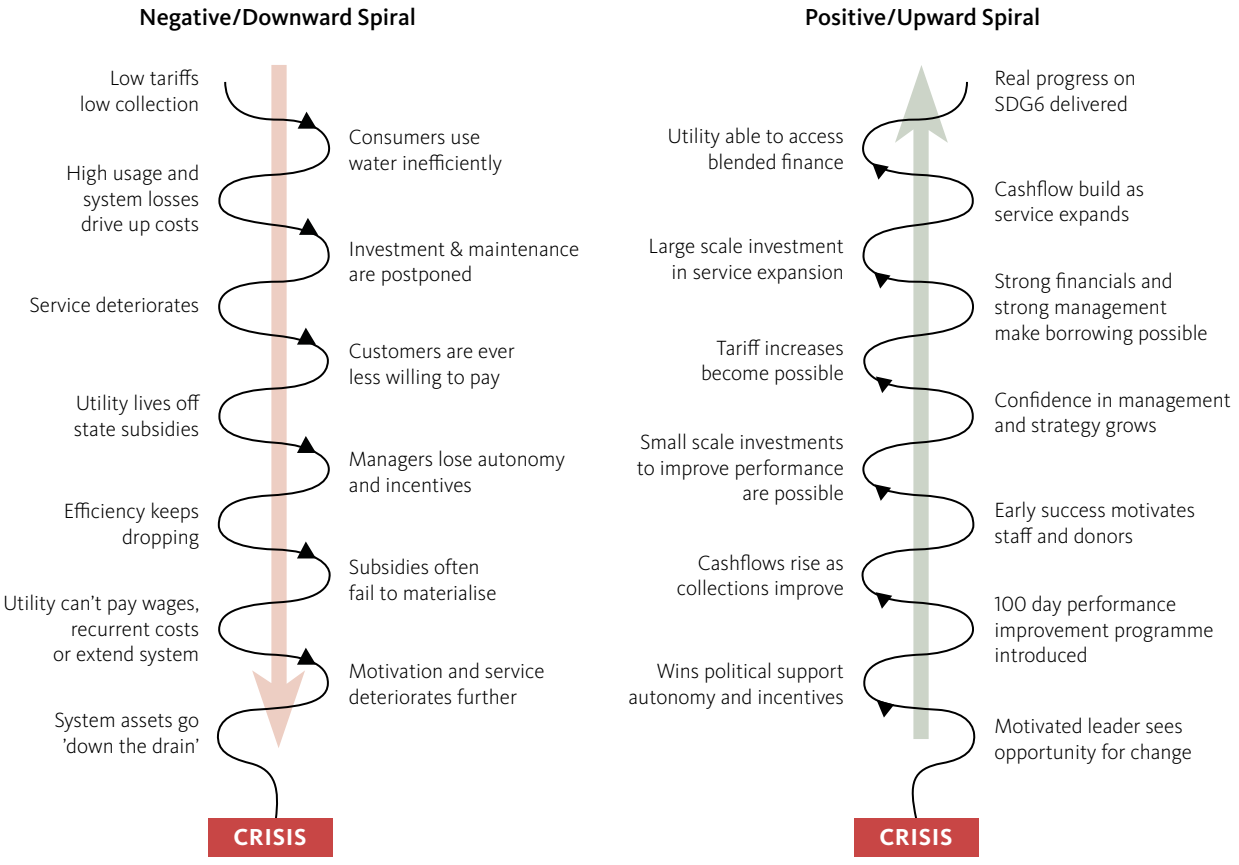

Figure 1: Visually representing the spirals of performance (The Urban Water Catalyst Fund)

Major tariff changes in Sub-Saharan Africa

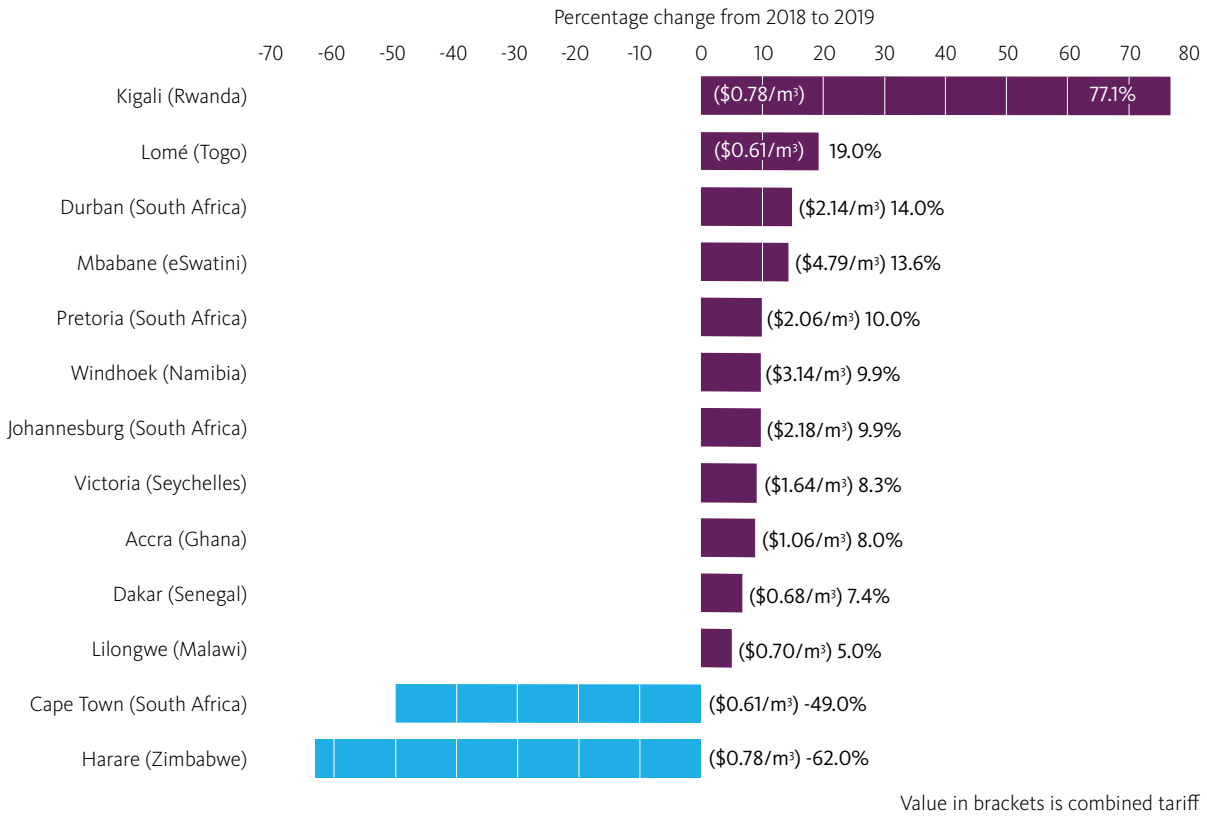

Figure 2: Global Value of Water White Paper 2019.

other types of organisations, to attract investment and scale their impact which, for a water utility, would include maintenance and expansion of the infrastructure network, ensuring water quality, or scaling up more aspirational elements of the service offering.

Without proven bankability or a track record of achieving key performance indicators, the utility is simply a leaking bucket with no hope of securing the investments that are necessary to maintain sustainable service levels. The necessity of a sustainably functioning tariff system within a utility can be demonstrated by the directional spirals of performance (Figure 1). The origin of the negative spiral is low tariffs and collection rates, leading to crisis point. The upward spiral of performance shows that tariff increases are possible under transformational leadership, hand-in-hand with strong financial governance.

According to the 2019 *Global Value of Water White Paper produced by the Global Water Leaders Group,* the average increase in combined water, wastewater and stormwater tariffs was 3.3%, keeping pace with inflation. The average global combined tariff was $2.19/m³. This survey looked at 558 cities across 184 countries (including 56 new cities).

A modest 1.9% average increase in Sub-Saharan Africa's water and wastewater tariffs masks huge variation across the continent, with double digit swings in both directions recorded. While spiralling production costs, investment needs and drought conditions pushed prices up, currency devaluations and relief to water scarcity concerns meant others fell considerably. The regional average from 44 cities surveyed in 2019 was $1.16/m3.

Kigali (Rwanda) implemented its first tariff adjustment since 2015, with a combined bill increase of 77.1%, the largest on the continent in 2019. The new tariff is expected to better reflect the growing cost of producing water, encourage consumers to use water more sparingly and contribute funding towards the planned $440 million investment in the country's water and wastewater infrastructure. This includes the building of new water treatment plants and supply systems in both rural and urban areas. These projects are set to take place over the following three years in order to meet governmental plans that all Rwandans have access to clean water by 2024.

Similarly, Mbabane (eSwatini) is entering the second year of a three-year tariff adjustment plan. The 13.6% increase for both water and wastewater is expected to reoccur next year before a reassessment of the cost-matching status of the tariff.

At $4.79/m3 for combined bills, Mbabane is the second most expensive city in Sub-Saharan Africa closely behind Praia (Cabo Verde) where bills stand

at $5.17/m^3. Addis Ababa (Ethiopia) retains its spot as Africa's cheapest city, with an average combined cost of $0.13/m^3.

In West Africa, Lomé (Togo) updated its tariff structure by adding a monthly meter rental fee of CFA720 ($1.25), which resulted in a 19.0% increase in the monthly combined bill.

Drought in Namibia, caused by poor rainfall, has meant water supply is far from guaranteed for the residents of Windhoek. They have had to shoulder the increased cost of buying bulk water, imposed upon Windhoek's municipality by NamWater, resulting in a 9.9% increase in combined rates.

In Accra (Ghana), water tariffs increased by 8.0% over the last year in the face of growing demand for water and a need to replace ageing infrastructure. High inflation and unfavourable GHS-USD exchange rates also affected the price of water directly and indirectly through the cost of fuel, electricity and water treatment chemicals.

Another country reeling from unfavourable macro-economic conditions is Zimbabwe. The government introduced the local currency (RTGS$) as the sole legal tender in June 2019, which has fallen sharply against the dollar, hence a 62.0% decrease in Harare (Zimbabwe), even though tariffs actually increased.

The once-in-a-century 2017-2018 drought that afflicted Cape Town (South Africa) last year caused tariffs to skyrocket as the City of Cape Town's Department for Water and Sanitation implemented strict 'Level 6' water restrictions to stave off 'day zero' (when the city runs out of water). Heavy rainfall, however, has reduced water scarcity concerns and ended the city's drought problems to the extent that the local municipality has reduced water restrictions to Level 1. The result of this has been the biggest actual drop in tariffs for 2019, a fall of 49.0%. This is in sharp contrast to other large South African cities such as Durban, Pretoria and Johannesburg, which experienced increases of 14.0%, 10.0% and 9.9% respectively.

Why tariffs fail and approaches to achieve sustainability

There continues to be a range of issues which need to be addressed and reasons why tariffs fail, or at least, why tariffs do not provide an adequate level of financial sustainability for a utility's operations. Some major barriers to sustainable tariff setting include:

Categories	#	Key reasons why tariffs fail	Recommendations for consideration	
			Short-Term	Long-Term
The need to modernise financial systems	1	**Poor billing systems**: When a utility doesn't know who its customers are or how to contact them (absence of, or inaccurate, customer records).	**Compile a robust database**: Establish exactly who the utility serves and with which services e.g. drinking water, wastewater collection, etc.	**Digitise billings:** Integrate (or develop) software which is specific in its deployment (installed or cloud based), contingency billing (are there any pre or partial payments?), and projected billing (to help the utility plan and compare revenues).
	2	**Poor collection systems**: In cases where, even if the customers are billed, and even billed accurately, the money does not make it to the utility's account.	**Analyse non-revenue water**: In this context, what is the precise gap between billings and collections? Are there trends in the data? This may be more complicated than non-payment e.g. socio-economic or infrastructure issues at play.	**Digitize collections:** Leverage mobile phone and online networks for digital payment of bills directly to the utility's accounts receivable system. This instills transparency and confidence, closing the gap between billings and collections.
The need to modernise technical systems	3	**Poor measurement systems**: The utility doesn't know how much water its customers use or how that matches with the amount of water it provides.	**Decide on a locally relevant measurement system**: You can't manage what you don't measure. Often for utilities, this means installing water meters. Where applicable, such as community-based water supply, pay-as-you-go systems can also be a solution.	**Scale up to metering:** As local communities become more socio-economically empowered and the utility begins to provide household-based water supply, household meters can be fitted. These can be basic, buy Advanced Metering Infrastructure/ Automatic Meter Reading (AMI/AMR) would be a robust step-change to make at this stage.
The imperative to suit local needs	4	**Inappropriate tariff structure**: Mechanisms built into the tariff structure do not suit, and therefore do not serve, the local community.	**Decide how the structure should meet local needs**: What should the tariff cover (opex, future capex provisioning, scarcity pricing)? How can these categories be communicated to rate-payers to ensure that they will understand the value profile of what is being provided?	**Evolve the structure proportionately to socio-economic development:** As economic development increases, tariff needs can become more aspirational e.g. moving from providing clean drinking water to the creation of green liveable/ wellbeing spaces.
The need to work with the enabling environment	5	**Politicisation of tariffs**: Where a government has expansive purview over water tariff setting e.g. the tariff might be abolished, reduced or stabilised in order to win votes. There may also be other political urgencies which reduce the will to invest or prioritise water governance and infrastructure.	**Empower utility leadership**: This is the basis of the upward spiral of performance i.e. where the leadership is motivated for change. This can be supported by a variety of stakeholders. Utility leaders need to recognise and leverage the overlap between voters and rate-payers, and the goals they have in common e.g. health, wellbeing, economic development, social inclusion.	**Index the tariff:** Once the tariff categories are decided (as per category #4 above), index the tariff to the utility's costs e.g. energy costs, inflation, etc. This helps to de-politicise future tariff increases (i.e. when the tariff is indexed automatically, it is no longer the utility's choice each time the tariff increases. It is simply down to external factors).
	6	**Fragmented regulation**: Since water is a cross-cutting issue, it is often affected by several and even fragmented regulatory frameworks which impact on e.g. drinking water quality, environmental water quality, financial management, design, installation and operations of systems, wastewater reuse.	**Map the regulatory environment:** The utility should take the initiative to comprehensively understand its compliance and identify any gaps or contradictions in the regulatory environment. Once the regulation map has been created, it can be disseminated throughout the utility's staff to ensure full quality control.	**Work with the regulator:** Where there are gaps, contradictions or challenges with the regulations, the utility should contact and cooperate with the regulator to address the deficits e.g. regulations may have become outmoded for the utility's new priorities especially as it moves through the upward spiral of performance.

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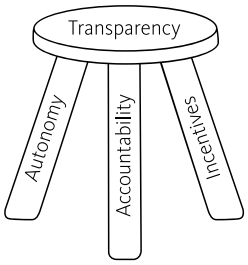
Key Challenges and Opportunities

The following section identifies key challenges identified in the development and implementation of sustainable tariffs and proposes recommendations to mitigate these challenges.

Challenge #1: Institutional Governance



Water utilities need to be governed well to implement and sustain robust tariffs and good performance. Governance is often said to be essential but defining it can be challenging. Good governance structures should include: (1) autonomy of the utility, (2) accountability of the utility to stakeholders including water users, government and donors (where applicable), (3) emotional and financial incentives for all levels of utility employees to drive performance forward. All of this should be covered by a three-legged 'stool' of transparency.

Challenge #2: Financial Governance

Together with institutional governance is financial governance as, ultimately, water is also an economic good. Good financial governance has long been undermined by issues such as those mentioned with regards to tariff setting in the previous table. Financial managers form the backbone of organisational stability, with accountability for overall cash flow, salary and incentive payments, and even minimization of commercial non-revenue water. It is imperative that financial managers are viewed as more than bookkeepers, but as partners in the prosperity of the organisation. This will require sustained cooperation between engineering and financial departments.

Financial managers and the utility management team need to develop long-term financial plans, approximately 10-year plans, that underpin the strategic and operational asset management plans. The financial planning should include considering the availability of internal funds over the suggested 10-year period of which tariffs probably are the most important contributor. These financial plans should include:

- Multi-year tariff plans and policies that support the utilities' strategic planning, inclusive of capital maintenance and upgrade or expansion requirements, as well as the potential subsidies required to assist the poor;
- Consideration of additional debt required to enhance the internally generated funds. This step considers the existing portfolio of debt instruments i.e. the tenor of individual loans and the weighted average cost of capital (WACC) of the portfolio, comparing this to the targeted or policy driven WACC;
- Consideration of alternative procurement options to improve the governance of existing infrastructure assets i.e. management contracts or consideration of alternative procurement options to upgrade and or develop new infrastructure assets i.e. traditional procurement versus PPP procured service providers.

Challenge #3: Ensuring a safety net

Social tariffs (which operate as a safety net for the poor in line with the human right to water and sanitation) and cross-subsidization are key mechanisms which can make full cost recovery tariffs a socially inclusive reality. Social tariffs and cross-subsidization within communities are complementary and essential in many utility contexts, particularly those which experience socio-economic deprivation (not limited to economically developing countries).

Case study:

Enugu and urban water reform

In the context of the National Urban Water Sector Reform Project undertaken by the Nigerian Federal Ministry of Water Resources, the Africa-EU Water Partnership Project (AEWPP) is supporting the Enugu State Water Utility in order to make it more financially sustainable. Indeed, the Enugu State Water Utility currently depends largely on federal subsidies not only for capital investments but also for major parts of its operational expenses.

Under the National Urban Water Sector Reform, the Federal government's objective is to enable more autonomy and to create a favorable environment for the establishment of future performance-based contracts with water public utilities. With that objective, the AEWPP is working with Enugu State Water Utility on the elaboration of a financial model and an appropriate tariff structure, that will provide a guarantee on the long-term financial viability of the Utility while covering the entire categories of water users (including poor households). The AEWPP is partnering with the Agence Française de Développement (AFD), that will fund the rehabilitation and extension of the Enugu State Water Utility distribution network.

An example of an African water utility which has this model is Uganda's National Water and Sewerage Corporation (NWSC). The Utility is able to cover all its operational costs plus depreciation and also generate a surplus that is put back into the system. In addition, the NWSC has a social tariff that is cross subsidised by higher socio-economic groups.

Challenge #4: Stakeholder engagement

Communications is a major driver for social change and understanding of tariff implementation, and therefore sometimes good tariff implementation isn't about the tariff at all. Taking the beneficiary ('rate-payer') community along for the journey of emotional buy-in can be as important as enforcing their financial buy-in. Integrating an effective communications strategy into the tariff process reduces resistance to structural changes (such as cross-subsidization) or overall tariff increases. Utilities need to help their communities to understand (1) the value of water itself (e.g. scarcity pricing), (2) the value of water services (e.g. the value of the infrastructure which treats and brings them the water), (3) the value of sanitation (the value of wastewater infrastructure), and (4) what all of this means for the economic development/poverty reduction, climate mitigation and adaptation, and improvement in urban liveability of their local community in the longer term.

Challenge #5: De-Politicisation

There has been a historical risk in some places where quick political points could be won by over-promising on water delivery or even lowering/abolishing tariffs. However, this has a threefold negative effect whereby (1) utilities lose the ability to cover their costs autonomously and must look to other funding sources (which typically end up being governmental such as taxes or transfers – so the government hasn't achieved anything financially in the longer term), (2) the utility's performance tends to decline which leaves the community with negative disconfirmation of service expectations (an attitude which reflects on the utility just as much as the government due to the earlier political interference and promises), and (3) the newfound spiral of declining performance and financial unsustainability of the utility makes it an unattractive investment to other funders and financiers (putting money into 'the leaking bucket'). However, since voters overlap with rate-payers, politicians and utility leaders have an incentive to be consistent when communicating with voters/rate-payers.

Challenge #6: Human resources

The water sector continues to struggle to attract new younger staff at all levels (municipal, national, regional, and global), resulting in challenges to manage water infrastructure and undertake long-term strategic planning (SIWI, 2019). The ageing workforce in water utilities will only be a challenge for the next 5–10 years, after which utilities will simply employ fewer people (with added work pressure per person), unless they attract younger staff and ensure knowledge transfer.

Attracting 'next generation' utility employees is about understanding their motivations and how they fit with utility management goals. Employment drivers for Generation Y and Z (otherwise known collectively as 'Millennials') include (1) social consciousness, (2) competitive pay, and (3) opportunities for personal capacity building (e.g. 'Waternet' in Amsterdam).

1. **Social Consciousness**: International policy goals and laws (such as the UN SDGs and international human rights) have brought water to the forefront of social consciousness, action and business. Working in water is an ideal fit for Millennials who are interested in making the world a better place, however the sector needs to be better at communicating the altruistic attractiveness of working in water.

2. **Competitive Pay**: A high-performing utility will be able to show it values human resources highly by offering competitive remuneration packages.

3. **Opportunities for Personal Capacity Building**: Developing an organisational culture of innovation combined with utility-to-utility learning schemes will foster not only overall operational growth and insight, but also knowledge transfer and professional relationships between individuals during off-site inter-utility face-to-face visits. Collaborations should also go beyond the utility sphere. Partnerships with other stakeholders, such as universities, can also create a pipeline of highly skilled future employees (e.g. DC Water, USA). Alternatively, utilities can encourage employees to undertake paid study during their employment with the utility, with a research focus on that utility's needs, which develops a curiosity among staff about their organisation beyond the 'day job' mindset (e.g. Uganda NWSC).

Challenge #7: Better use of the private sector engagement

The National Business Initiative Kopano ya Metsi ('meeting for water' in Sesotho – South Africa) was initiated in 2017 to understand how water investment can be unlocked in the South African context. In the report called Unlocking Water Investment in South Africa (2019), the NBI outlines a number of the interventions required to strengthen the financial viability of the water sector and promote the much-needed investment. The need to rethink the role of private sector is a central point in that report.

The report points out the need to switch from 'short term contracting' (traditional procurement where there is very limited (to no) transfer of risk), to 'longer term contracting' (alternative service delivery options) where both the public and private party share risks according to their respective strengths/capacities. One alternative delivery option could be long-term performance-based management contracts, in which the onus is on the service provider to meet its contractual obligations, while the key responsibility of the municipality is to ensure that the private party is on track. The performance of the private operator can be measured in relation to areas such as enhanced customer service or ensuring the provision of free basic water to indigent households, or improved working conditions for municipal employees and implementing accessible customer payment methods. The Joburg Water Management Contract, implemented between 2001 and 2006, provides a good example of this combined approach.

Depending on the nature of the partnership, building the utility's attractiveness as an investment needs to be balanced with local financial, social, cultural and environmental protections.

1. There are three major risks which have been expressed by investors with regard to infrastructure finance, according to Global Water Leaders Group research. (Figure 3).

Risk	Mitigation
1. Construction Risk	This is mitigated by appointing a competent and credit worthy builder with appropriate financial incentives and expertise.
2. Operating Risk	This is dealt with by having an operator with relevant experience and appropriate incentives and KPIs to perform the task well.
3. Cash Flow Risk	This is the risk that the project will not generate sufficient cash flow to pay off its debt obligations. Assurance to the financiers could come from the Government (provided it is credit worthy), the general population paying for water delivery, or a corporate sponsor. This is a factor which with vary across the world.

Figure 3: Infrastructure Finance: Risks and Remedies (Interview, David Howell, Director of Kananga Ratings Advisory Services (Water Leader magazine: Volume 2, Issue 1).

2. Looking more broadly, Global Water Leaders Group research shows that utilities should be aware of additional risks which concern private sector investors in the water utility sector (regardless of whether the partnership is for the construction of infrastructure and related services and simply concerns repayment, or whether there is an additional level of private equity in the financial structuring). (Figure 4).

Barrier	Description	Potential Solution
Country and Political Risk	Investors (Debt and Equity) may require political risk insurance to be provided which may cover some or all of the following possibilities: • Political violence, such as revolution, insurrection, civil unrest, terrorism or war; • Governmental expropriation or confiscation of assets; • Governmental frustration or repudiation of contracts; • Wrongful calling of letters of credit or similar on-demand guarantees; • Business Interruption; and • Inconvertibility of foreign currency or the inability to repatriate funds. The view from investors and funders is based on a combination of research (in house or outsourced) and observation. The investors and funders do not wish to lose their investment due to any or all of the above factors.	If political Risk Insurance is available, this may provide comfort to the funders to proceed.
Non-Transparency	A potential perception that government authorities (including the water utility) may be prone to corruption and/or bribery. This is a governance issue for the country regarded externally in this way.	It can really only be fixed by strong regulation and track record of correction
Operationalising Repayment	Potentially for poorer nations the investors and funders may be concerned about how and when they will be repaid.	This may be mitigated by wealthier countries providing financial assistance to water and wastewater projects and potentially underpinning debt providers through financial guarantees or other similar mechanisms.
Project Currency Denomination	When funders and investors are based domestically in the country where the project is to take place, there should be no issue for the water utility borrowing in the local currency and hence bearing no hedging risk. If, however, the funders and bankers are external to the country where the project is to take place, they may wish to be repaid in a staple currency (e.g. US Dollars). If the other currency has had a volatile exchange history with the USD, then the cost of hedging may be significant or even not possible.	The cost of 'hedging' can be measured through the use of cross currency and interest rate swaps. International banks can provide pricing for these and this should be factored into the project's feasibility analysis. (Note: the more volatile the domestic currency versus the staple currency, the shorter the available term of the swap is likely to be).

Figure 4: Barriers to commercial finance in the water sector (Water Leader magazine: Volume 2, Issue 1).

Challenge #8: Mainstreaming new technologies

Mainstreaming new technologies for the benefit of the water sector, particularly risk averse utilities, is a three-fold process: (1) Proving multi-local usefulness of each technology to drive wider uptake, (2) engaging with complementarity of technologies in the overall operational balance of the utility, and (3) addressing the inherent risk aversion of utilities in the context of upholding community health and well-being. These issues can be addressed in several ways, for example:

1. Utilities and technology providers have the opportunity to work together in an integrated way to adapt off-the-shelf technologies to meet utilities' needs more effectively (e.g. Southern Nevada Water Authority/Las Vegas Valley Water District (SNWA/LVVWD, USA). This can be useful in driving multi-local uptake of technologies, as well as ensuring complementarity of technologies (e.g. via onsite testing of technologies prior to adoption at each utility).

2. Leveraging existing networks which collect and compile proven case studies (e.g. Global Water Leaders Group) to reduce risk aversion i.e. reviewing the compilation reduces concerns about being a first/early adopter of a particular technology.

Mainstreaming new technologies can help to provide efficiencies within utilities which help to take pressure off tariffs, however a utility can only invest in these new technologies if it is financially sound. This circular experience is reflective, once again, of the need for the upward spiral of performance.

Conclusions:

Utilities need to improve their governance and specifically financial governance, since it is key to unlocking the potential to become a sustainable and modern service industry. Financial management as a critical component of utility management requires dedicated financial professionals applying modern financial systems in its long-term planning exercise. The operationalisation of the utilities' finance functions including multi-year tariff plans and policies, billing and collection systems all are optimally integrated with the long-term asset management plans. Utility financial management needs should be strengthened due to its critical role in ensuring the long-term sustainable and affordable delivery of services.

Water is a long-term asset and should be managed as such, with a long-term management vision and strong regulation: the need for financial governance to be recognized as a priority is key because sustainable finance is the only way to have a sustainable service that is also inclusive. Without sustainability, policy objectives to provide water for all cannot be met. The core role of the public sector is to be able to make the right arbitrage/decisions based on sound decision-making processes.

First and priority investment should therefore be in people: the transition will need to be done by qualified management with innovative mindset. The priority investment is thus in people – ensuring that the sector attracts and retains the best talent including young people.

Photo: iStock

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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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