

PART II

A HANDBOOK ON WASH FOR IMPACT INVESTORS

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in collaboration with the e-MFP WASH Action Group



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Aqua for All

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ABOUT THE HANDBOOK PART II

Billions of people across the world have gained access to basic drinking water and sanitation facilities since 2000, but these services do not necessarily provide safe drinking water and safely managed sanitation facilities. Even though 74% of the world's population used safely managed drinking water services in 2020, 2 billion people still lack access to these services. The need for urgent investments in the WASH sector is inevitable to meet the 2030 goals of Sustainable Development Goal (SDG) 6, which focuses on safe drinking water, sanitation, and hygiene. Currently the three major sources of WASH financing (taxes, tariffs, and transfers) are not enough to meet the need for safe drinking water and sanitation services in developing countries. As governments and public finance cannot meet these funding requirements on their own there is a need to attract more private investments to the sector along with a similar increase in public finance.

This handbook was prepared in collaboration with the e-MFP WASH Action Group (AG). The AG was created in 2021 to answer to a need shared by some e-MFP members, particularly investors, to better understand the WASH sector and its relevance for low-income populations in developing countries, and to be able to identify investment opportunities in the sector. This is the first output of the AG activities and the result of thorough secondary research and stakeholder interviews. The handbook is divided in 2 Parts. Part I aims to improve awareness about the sector and its linkage with the SDGs. It contains valuable information not only for impact investors but for all financial inclusion stakeholders looking to improve their knowledge about the sector. Part II focuses on the WASH economy, drawing attention to the existing funding gap, identifying challenges and pre-conceived ideas about investing in WASH projects and advancing solutions to tackle the identified challenges, with the expectation of contributing to catalyse new investments in the sector in the short and medium term.

In Part II, the first chapter provides an overview of the opportunities for private investors in the WASH sector and the current state of the WASH ecosystem, while dispelling myths associated with the sector. The second chapter addresses the “how” and “why” of financing WASH. It talks about risks and returns, the type of financial vehicles that have been used until now, and what innovations are upcoming to make WASH financing more efficient and result oriented. It presents also demonstrative cases which tell success stories of financial innovations in WASH and how public and private sector can come together to solve the issue of access to WASH services for the poor. Finally, the last chapter provides insights into how to tackle the challenges in WASH through various case studies, reinforcing the argument that many of these problems are solvable and are starting to be addressed across the world.

ACKNOWLEDGMENTS

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List of Abbreviations

BOP	Base of Pyramid
CBO	Community-Based Organizations
CFI	Corporate Finance Institute
DFI	Development Finance Institution
EFL	Entrepreneurial Finance Lab
ESG	Environmental, Social and Governance
FSTP	Faecal Sludge Treatment Plant
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water
IDA	International Development Association
IFC	International Finance Corporation
ILO	International Labour Organization
IRC	International Reference Center
JMP	Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
MDB	Multilateral Development Bank
MFI	Micro Finance Institution
MPWI	Multi-Purpose Water Infrastructure
MSME	Micro, Small, and Medium Enterprises
NGO	Non-Governmental Organization
NSDF	National Slum Dweller's Federation
OECD	Organisation for Economic Co-Operation and Development
PPP	Public- Private Partnership
PSL	Priority Sector Lending
RBF	Results-Based Finance
RBI	Reserve Bank of India
ROI	Return On Investment
SDG	Sustainable Development Goal
SIINC	Social Impact Incentives
SME	Small and Medium Enterprises
SPARC	Society for the Promotion of Area Research Centers
SSWM	Sustainable Sanitation and Water Management
STP	Sewage Treatment Plant
TIC	Total Impact Capital
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WSUP	Water and Sanitation for the Urban Poor

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Executive Summary

The private sector has a critical role to play in meeting the UN Sustainable Development Goals (SDGs) over the next ten years. WASH - one of the focus areas of the SDGs, presents a clear need of attention especially in the global south where lack of proper sanitation amenities and clean drinking water affect billions of lives. Not only is it expected that private investors will contribute to developing a robust WASH ecosystem in these regions, but also emerging evidence suggests that there is a business case for doing so, as investors build environmental, social and governance risk into their decision making, and seek to act in the interests of a broader range of stakeholders.

Although substantial progress has been made in the last decade, the WASH ecosystem still suffers from system blindness, i.e., it focuses on tangible infrastructure without paying the necessary attention to the supporting systems that make that infrastructure work. On a global scale, 2 billion people still lack access to safe drinking water services while 3.6 billion people lack access to safely managed sanitation services. Only 1.36% of total private finance mobilised from 2012-17 has been applied to the water and sanitation sector. The WASH sector needs considerable investment not only across the entire water and sanitation value chains, but also in external drivers like capacity development, policies, and technology.

To develop a good understanding of the water and sanitation ecosystem, it is necessary to understand the value chains associated with it. WASH value chains consist of broad-level stages, activities, and actors under these stages. Major stages of the safe drinking water value chain include source, extraction, treatment, transmission, market, consumers, and drainage. Whereas the major components of the sanitation value chain are point-of-use, containment, emptying, transportation, treatment, waste-to-value processing, and disposal. The major external drivers that influence the water and sanitation ecosystem are policies and regulations, capacity development, technology intervention and funding to the sector. Through the business models we studied during the research for this handbook, we concur that most private operators serve multiple stages of the value chains. So, investments in the WASH ecosystem should be mobilised across the value chains.

Historically considered an area catered for by the public sector, the current financing of WASH depends essentially on public funding, subsidies, or charity. However, it is accepted that this will not be sufficient, and it will not bring the sustainability that is needed. Delivering universal access to safe services under SDG 6 could only be achieved if the sector attracts more private finance, which traditionally perceives this market as too risky. Private SMEs have proven to be important building blocks in the WASH ecosystem of emerging economies, providing products and services throughout the water and sanitation value chains (in many cases, cross cutting across different stages of the value chain). Adding to that, SMEs have often been torchbearers of innovations in the WASH sector and can present a sustainable business case for impact investors. Public sector WASH infrastructure often provides limited access, safety, and reliability to the bottom of the pyramid. SMEs may complement this infrastructure and bridge the gap in safe access to the last mile.

WASH has massive potential for private sector investors. Coupling the knowledge that most innovations in the sector come through private enterprises, with the fact that more than USD 1.25 trillion is required globally to meet SDG6 targets by 2030, funds must be mobilised by governments, philanthropic initiatives, and private sector alike to scale innovative solutions addressing a critical problem in the remotest parts of the world. Considering a 10% participation rate in the funding from the private sector, this means an investment opportunity of USD 125 billion for private investors.

The largest investment opportunity for private investors is present in China (USD 26.1 bn) followed by India (USD 19.2 bn). The South-East Asian region also provides a sizeable market (a total of USD 8.3 bn). For largest impact, African countries make a good case (combined opportunity of USD 10.3 bn) as access to WASH services is lowest in this region. There is also growing evidence against a traditional myth that the public sector is the only actor in WASH ecosystem. Countries like Kenya (70% of the water market is private) and Brazil have been examples that private sector can contribute efficiently to WASH.

The 2019 UN Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) Report reveals that among 115 participating



countries, the majority has a national plan addressing these needs (with estimated costs), but less than 20 countries reported having ensured sufficient funding to implement their plan. Despite all this and the WASH economy not being considered mature enough by many in the private sector owing to lesser profitability and historically sub-

standard revenue models of private WASH businesses, the development of innovative financing structures and instruments has been adding significant value and building an investment case. These structures help private sector investors manage risk and return, while creating tangible social impact. Adding to these new perspectives brought by investment vehicles (as thematic impact funds in blended finance), circular economy approaches, integrated water resources management such as the water-energy-food-health nexus, and new technologies are unleashing new opportunities for small WASH businesses.

It is recognised that new technologies will contribute significantly to the realisation of the SDGs. Indeed, new technologies in the WASH sector facilitate and accelerate the deployment of successful solutions, as well as the monitoring of activities and their impact. Innovative solutions like alternative credit assessments, digital repayments, small-scale delegated management, and cross-subsidies have been helpful in mobilising more private finance by formalising the sector and balancing risks for private investors. Concomitantly, the WASH sector is moving into a more transversal approach to support entrepreneurs trying to create impact, with the emergence of regional business incubators, accelerators that help WASH enterprises become attractive and reach new and innovative sources of finance.

1

GLOBAL WASH MARKET & CHALLENGES

population through WASH can also be an instrument to penetrate new markets. This has been demonstrated by consumer goods corporations such as Danone.

Case Study – Danone

Danone, a leading global food company, is a prominent advocate of purpose driven capitalism. Having its own social business arm, Danone is able to generate goodwill in emerging markets through its social responsibility initiatives. One example is “AQUA” – a manifesto brand in Indonesia working on providing access to quality water to the unserved by serving packaged water for the past 47 years. AQUA has become the number one bottled water brand in Indonesia, while addressing SDG 6 and creating a positive image of Danone at the base of the pyramid. Danone is working on various similar projects throughout the developing world including the Drinkwell and Grameen Danone projects in Bangladesh. Danone Communities – a venture capital fund is also supporting social businesses through equity investments, technical assistance, and networking platforms.

1.1. Global WASH economy

Factors affecting the WASH market

The global WASH market is affected by various factors like population growth and dietary changes that play a role in consumer demand and supply of WASH services. A white paper published by Waterpreneurs in 2018 describes these factors through an infographic (Figure 1).

Increasing global wealth coupled with diet changes and population growth has been accelerating the demand for water. In the next couple of decades, climate change is also projected to play a major role in driving safe water demand by impacting availability of water in many regions.

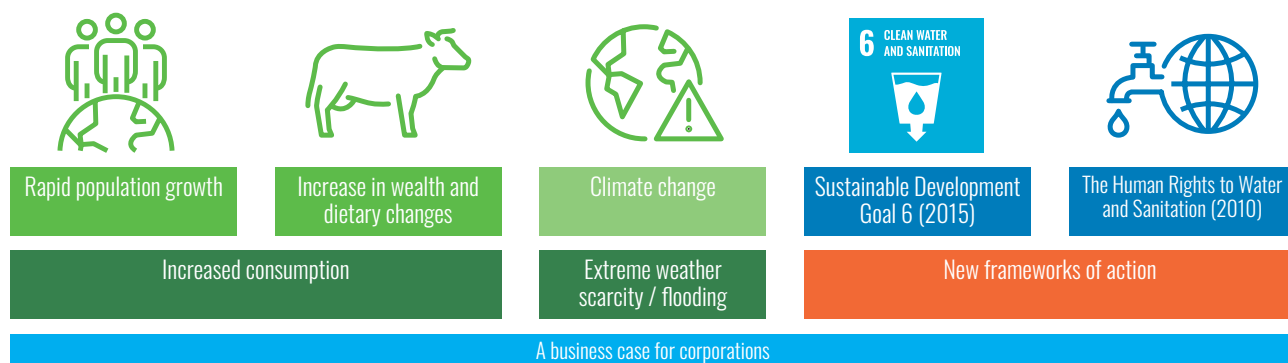
Why corporates should be concerned

The private sector is greatly exposed to drinking water issues, as in most cases, their supply chains depend on the stability of the communities residing in the areas where they source their products from. Reaching out to the bottom-of-the-pyramid

Global financing opportunity

Water and Sanitation are at the core of sustainable development, especially when emerging economies are considered. In a study from Hutton and Varughese (2016) for the Water Sanitation Program and the World Bank, the authors estimate that around USD 112 billion per year is required to deliver universal access to safe WASH services. Most of this investment is needed for sanitation,

Figure 1: Factors affecting the WASH market



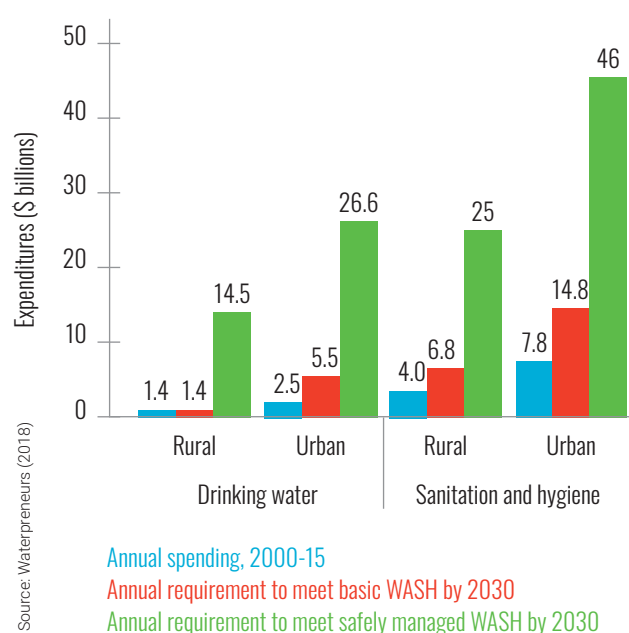
Source: Waterpreneurs (2018)

with around 40% for urban sanitation and 20% for rural sanitation. 63% of this investment is required in developing countries. Safely managed water also needs significant funding, demanding around 37% of the total WASH annual investment requirement. The current sources of funding will cover only 16% of new infrastructure investment needs, and countries must find new sources of finance – not just for extending services and covering larger populations, but also to fund adequate operations, maintenance, and supervision.

The market demand from individuals for affordable financing to meet their water and sanitation needs is USD 18 billion. At the same time, 55-68% of SMEs in emerging markets are either unserved or underserved by financial institutions (WaterEquity, n.d.). These metrics show that although there is a high demand for consumer-driven WASH economy in the market, lack of financing is hindering SMEs working in this space from providing safely managed services at scale to the underserved population.

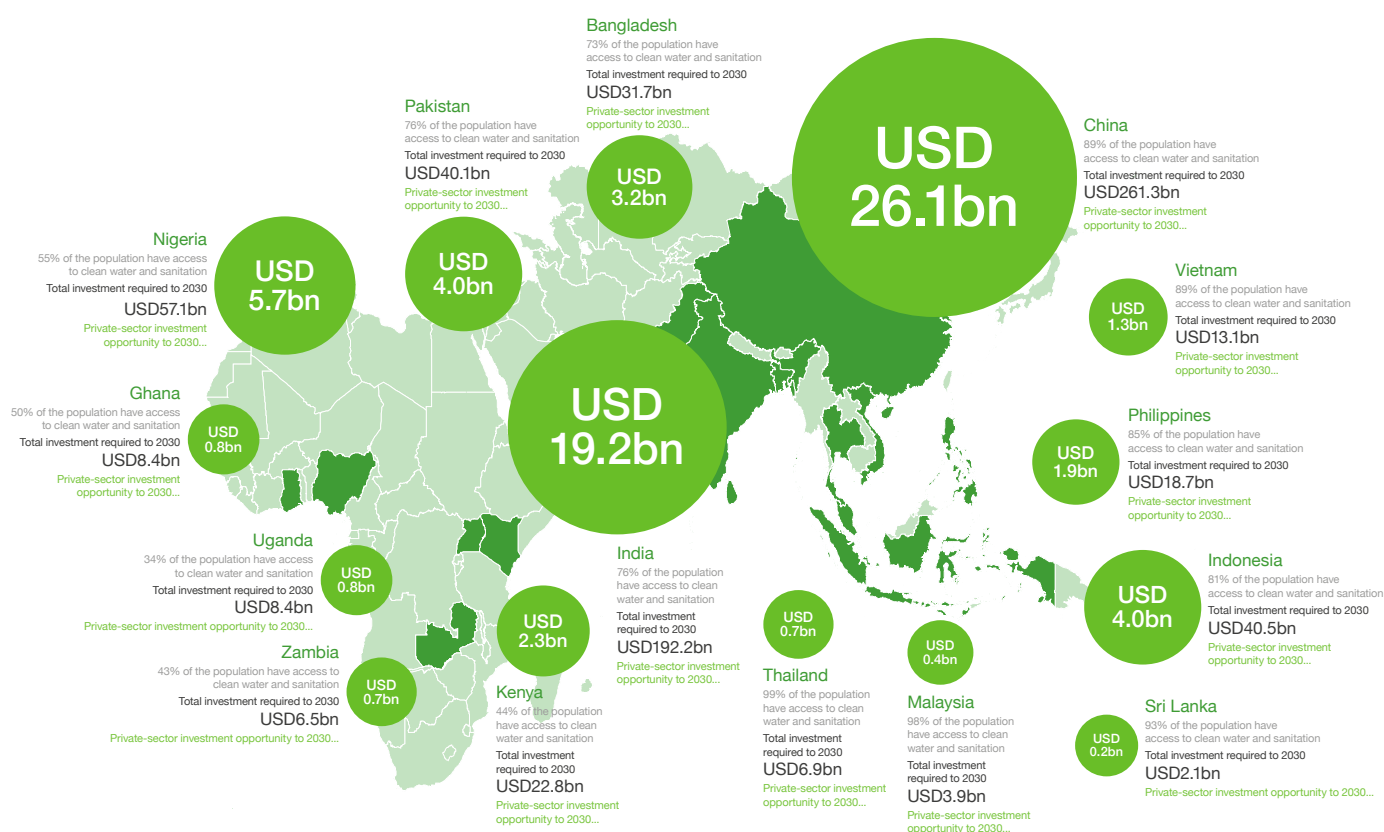
A research report published by Standard Chartered disclosed similar statistics, stating that a total of USD 1.254 trillion in WASH investments is

Figure 2: Annual spending vs requirements to meet SDG 6 targets



required in emerging markets by 2030 (Standard Chartered, 2020). The study, which aimed at understanding the potential private-sector opportu-

Figure 3: WASH investments required in emerging markets by 2030



Note: Country-wise private sector contribution is denoted in green bubbles whereas black-text shows total requirements
Source: Standard Chartered (2020)

nities in achieving SDG 6, considered an average private-sector participation rate of 10% and therefore a potential opportunity for private investors of USD 125.4 billion, an amount close to the estimates from the WSP/World Bank study.

The investment opportunity map prepared by Standard Chartered (Figure 3) shows the biggest opportunities for private sector investors considering WASH as an asset class. These are in China (USD 26.1 billion through private sector participation and 261 billion overall requirement) and India (USD 19.2 billion through private sector participation and 192.2 billion overall requirement). According to existing studies (Fonseca and Pories, 2017), some of these economies, make a good low-risk profile case for investors – with stable markets and high ease-of-doing business score. However, investors seeking to make the largest impact should look to African countries, where existing levels of access to water and sanitation are low and the need is greatest. Countries in South-East Asia (for example, Indonesia, Philippines, and Vietnam) also show a sizeable potential for private sector investments.

1.2. Myths and biases in WASH

There is a huge opportunity for impact investors and funders to expand their portfolios around WASH investments. However, investors find it difficult to mobilise their capital in WASH due to a lack of relevant public information about the sector. The latter generates a lack of understanding of the sector and how it operates, as well as the risks and returns involved with it. All of the above resulting in a series of misconceptions about the sector, which we will label “myths in WASH”.

Through secondary research and interviews with private sector investors, we identified several myths. We highlight the most significant and try to debunk them with available information:

1 The public sector is the only actor in WASH financing and infrastructure development

It is a common misconception that the WASH sector around the world is entirely owned and managed by the public sector. Even though more than 80% of the financial investments in water and sanitation have come from public sources, many developed countries have privatised wa-

ter delivery systems with adequate funding and infrastructure for the same (e.g., in France, water provision has been guaranteed by the private sector since the 18th century). But also in developing countries, private WASH operators and SMEs play a vital role in catalysing universal access and connection to water and sanitation services, and in some countries such as Kenya where 70% of the drinking water is provided by the private sector and Brazil, the private sector has a significant role in building and maintaining the water and sanitation infrastructures.

2 Basic services like water should be available free of cost

In many countries, especially in rural areas, people see essential services, such as safe drinking water, as a right that should be provided to the public free of cost or at subsidised prices. However, these services imply costly infrastructure and delivery operations. When services are delivered to the end-users’ doorstep but the service providers are not allowed to recoup any of their expenses from these end-users, the services cannot be sustainable. There is, thus, a need to raise awareness among consumers regarding the complexity and cost of these operations, and to make services and utilities sustainable and affordable to people of all income classes. To achieve this, one of the ways forward can be focusing on community level interventions instead of interventions at household level (e.g., community level water ATMs), reducing costs by building a common infrastructure for the community (World Bank, 2017).

3 Lack of interest in sanitation is primarily driven by lack of money

Another preconceived idea is that rural populations show lack of interest in improving sanitation amenities because they cannot afford it, reducing in this way the potential market for these products and services. There are, however, studies showing that this is not always the case - poorer populations tend to settle for what they have if they lack knowledge and awareness about the technical and financial solutions to respond to their needs. And they will tend to prioritise other products that they can perceive as attainable and useful. In a study conducted by the World Bank in Bangladesh, all poor families surveyed owned at least one mobile phone, which was double the

cost of a standard improved toilet but was perceived as having a 'better value' and providing status. In the same study, conducted also in Indonesia, Peru and Tanzania, researchers found that 65% of those without access to improved sanitation were non-poor, living above the respective national poverty line (World Bank, 2013).

4 Solving sanitation issues is all about toilets

Access to toilets and other sanitation facilities is only one of the components of the solution. The sanitation process also includes the connection to centralised or decentralised sewage pipelines, the transport and treatment of waste, and the safe disposal of waste. The entire sanitation value chain should be managed in a sustainable manner, as every stage is critical for reaching the Sustainable Development Goals (World Bank, 2017).

5 Enterprises serving the base of the pyramid are mostly micro firms because the market is small

Several studies show that this assumption is not true. A recent report published by Standard Chartered (2020) stated that a total of USD 1.25 trillion in WASH investments is required in emerging markets by 2030. The above-mentioned study in Bangladesh, Indonesia, Peru and Tanzania estimated the sanitation market in these countries alone to be worth USD 2.6 billion in the beginning of 2010's, and another study from the World Bank in Bangladesh, Cambodia and Benin found that the combined annual water sales in these countries is expected to increase to USD 90 million by 2025 (World Bank, 2013). However, this potential market requires intensive efforts to develop and execute market solutions suitable to serve this underserved population, especially in developing countries, with 80% of the enterprises that actually serve the poor being micro or small enterprises, often lacking access to adequate funding and support infrastructure.

2

WASH FINANCING

2.1. Financing gaps in WASH

As the world faces a looming water and sanitation crisis, there is an urgent need to address the financing gap in delivering SDG 6 targets by backing it up with sufficient capital investment. Current investments focus on construction of infrastructure with an absence of attention to the systems which make the WASH infrastructure work properly. This includes policies, monitoring, institutions, and people providing WASH services at local level. As a result, more than half of the world's population still lacks access to safely managed sanitation, and 1 in 3 people do not have access to safe drinking water.

This 'system blindness' – focusing on tangible infrastructure without giving attention to the supporting systems leads to the iceberg effect (wherein only a small part of the problem is addressed). This phenomenon is illustrated in Figure 4.

Historically, WASH has been financed by the public sector but as we have seen in previous chapter – public funds are not enough. There is an urgent need to understand the private sector's role in financing WASH and mobilise private investments globally. Figure 6 illustrates the public sector's contribution as reported to GLAAS for the period 2013-2016, providing a snapshot of annual government budget allocation for WASH in the period (Fonseca and Pories, 2017). The increment in public financing has been marginal and according to GLAAS 2017 data, around 80% of countries globally reported insufficient national financing for the sector (WHO, 2017). The situation has not improved much in the following years. GLAAS 2019 shows that only around 15% of the countries have sufficient funds to implement national safely managed WASH service plans (WHO, 2019). The gap between required and current funding remains large. With public budgets tightening after the onset of COVID-19, national financing towards WASH is not expected to rise considerably and moreover, overseas development assistance (ODA) is expected to decline as decision makers tend to prioritise domestic spending.

Figure 4: 'System blindness' leading to iceberg effect

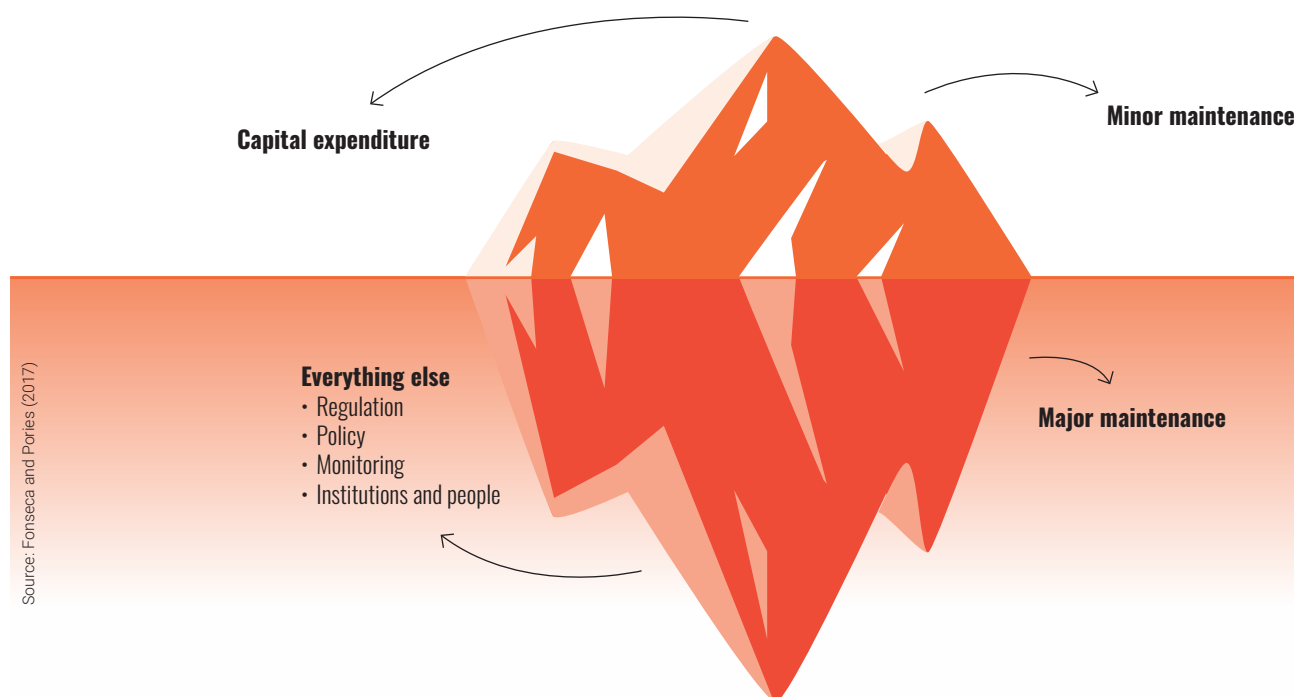
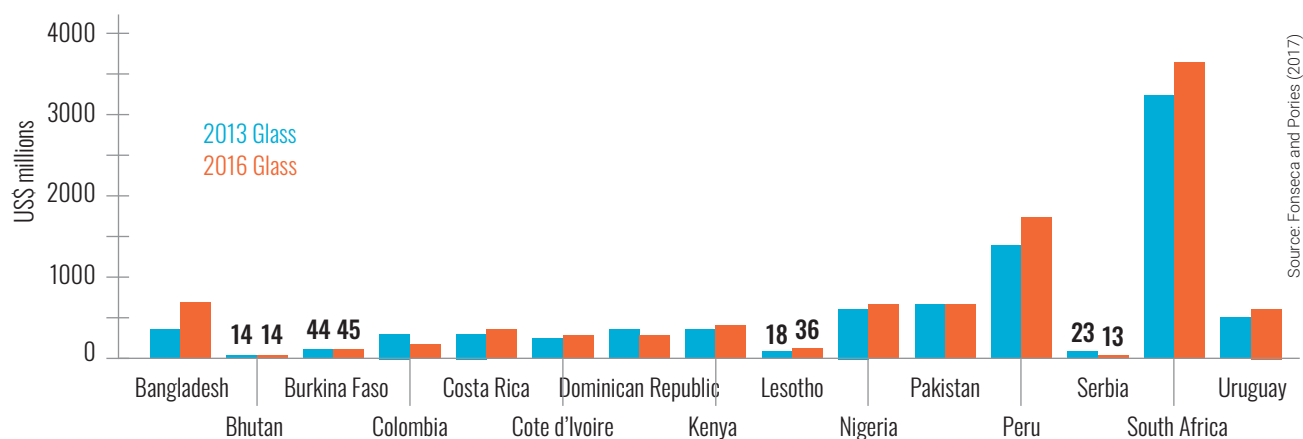


Figure 5: Annual government budget allocation for WASH, 2013-16



Some of the gaps in financing are explained by the following key issues:

- **Lack of finance for strengthening the enabling environment**

Investing in pumps, pipes, and toilets is insufficient to achieve SDG 6. Investment is needed in systems that support existing WASH infrastructure in order to provide safely managed water supply and sanitation services. There are many SMEs working in the WASH sector, providing services across the value chains and they have immense potential to deliver impact at scale. The main challenge they face is the lack of capital to scale up. Instead of the public sector using its scarce resources to finance WASH infrastructure, it could leverage that money to catalyse investments from the private sector by providing guarantees or a minimum return on investments.

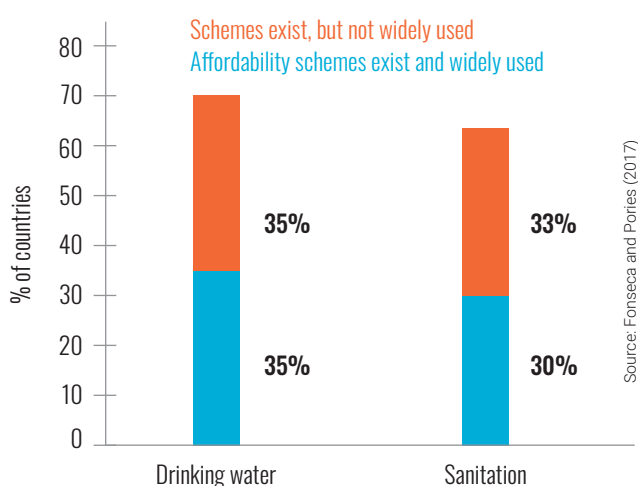
- **Untapped use of blended finance and microfinance**

As already established, public finance and development aid alone are not sufficient to achieve universal access to safely managed WASH services for all. The sector requires significantly more and funding to ensure that SDG 6 targets are met, the infrastructure investments are properly maintained and are delivering quality services over time. Microfinance can help solve one part of the problem by enabling the poorest to take small loans for water connections/sanitation facilities. This, coupled with government subsidies could be one way to accelerate WASH access.

- **Inequities in allocation of finance in the sector**

Inequality in WASH services investment and delivery, especially in developing countries, is a persistent challenge, which means that the poorest are excluded from improved services. In lower and middle-income countries, public finance is an underutilised method of reaching the poor even though this is the funding vehicle uniformly used across the developed world. Figure 6 shows the existence of financial schemes to make access to WASH services affordable to vulnerable groups.

Figure 6: Affordability schemes for WASH services



These critical financing gaps need to be filled to ensure universal access to safely managed WASH services. The complementary role that public sector and private finance can play is perhaps, the most important part of achieving SDG 6 and making WASH truly sustainable.

2.2. Importance of investments in WASH

The 2030 agenda for Sustainable Development Goals commits to achieving universal access to safe drinking water and safely managed sanitation services, irrespective of the economic conditions of people. According to the JMP report on “Progress on household drinking water, sanitation and hygiene 2000 – 2020”, if the current trends in the access to safe drinking water and safely managed sanitation services persist, billions of families will be left without critical life-saving WASH services by 2030. Indeed, only 81% of the total population will have access to safe drinking water, leaving 1.6 billion without; 67% will have safely managed sanitation services, leaving 2.8 billion without; and 78% will have basic handwashing facilities, leaving 1.9 billion without (WHO and UNICEF, 2021).

The report also shows that eight out of 10 people without basic water services live in rural areas. And that Sub-Saharan Africa has been experiencing the slowest rate of progress, with only 54% of people using safe drinking water (25% in fragile contexts).

In a study for the WSP and the World Bank, Hutton and Varughese (2016) estimate that an investment of USD 114 billion per year in the WASH infrastructure alone is required to achieve the 2030 SDG 6 targets, while providing access to safely managed sanitation services will require an investment of USD 105 billion per year, including both capital costs and the cost of operations and maintenance (WHO and UNICEF, 2021).

“Increased investments in WASH can yield substantial benefits for human health and develop-

ment, generate employment, and make sure that we leave no one behind,” Guy Ryder, the Director-General of the International Labour Organization (ILO).

The 2018-19 UN Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) Report states that twenty countries out of the 115 surveyed have a funding gap of 61% between identified needs and available funds to meet the SDG targets related to WASH. Even if there have been some improvements in terms of public WASH budgets, the insufficient funding makes it difficult for the nations to achieve their national targets. The report shows that 77% of the surveyed countries have estimated costs for the implementation of their safe drinking water and/or safely managed sanitation services plans and have appraised the funding required. However, as previously mentioned, only 15% of the countries have sufficient funds to implement these plans (WHO, 2019). Table 1 gives an overview of costed plans and the availability of finance in different sub-sectors of WASH across the 115 countries where the GLAAS study was carried out.

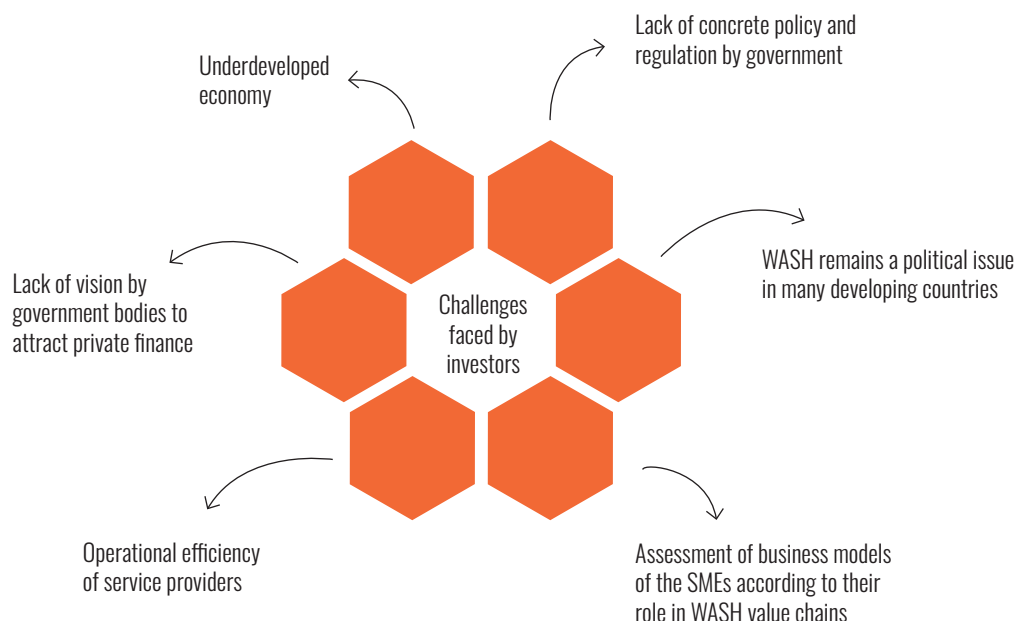
The three major sources of WASH financing are the 3Ts: Taxes, Tariffs, and Transfers. At the current scenario, even the combination of these three sources is not enough to meet the need for safe drinking water and sanitation services in developing countries. As governments and public finance cannot meet this funding needs on their own, the only way to solve this issue is to attract more private investments to the sector along with a similar increase in the public finance (Pories *et al.*, 2019). Here, the private finance can be treated as a catalyst which helps to increase the public sector investments. Both private and public investments

Table 1: National WASH plans funding (2018-19)

Sub-sector	Countries with WASH national plans (No.)	Countries with costed national plans (%)	Countries with costed plans reporting sufficient finance to implement plan (%)
Urban sanitation	94	82%	15%
Rural sanitation	90	79%	7%
Urban drinking water	95	77%	13%
Rural drinking water	91	85%	12%

Note: Sufficient finance corresponds to having more than 75% of the amount needed to implement the national WASH plan. Source: WHO (2019)

Figure 7: Challenges faced by investors in WASH financing



Source: Pories et al., 2019; Author interviews with investors

can act complimentary to each other to meet the financing requirements in the WASH sector.

From 2012 to 2017, private finance targeted for the WASH sector amounted to USD 2.1 billion, which is only 1.4% of the total private finance mobilised. Attracting private finance to the WASH sector of developing countries has been challenging (Figure 7). Private players often show unwillingness towards WASH investments because the projects and/or services in the WASH sector are usually unable to generate sufficient revenues to cover the cost which will in turn lead to low Return on Investment (ROI). A comprehensive financing strategy that utilises both public and private finance is essential for a healthy, sustainable growth of the WASH sector (Pories et al., 2019).

2.3. Financing risks & returns

Impact investors target a range of financial returns – from concessionary return of capital to competitive market rates. In the 2018 Annual Impact Investor Survey conducted by the Global Impact Investing Network (GIIN), most for-profit fund managers (81%) target market rates of return, whereas most not-for-profit fund managers (70%) target below-market returns. Globally, 64% of impact investors targeted market rates of return, 20 % below-but-close to market rate and 16% returns closer to capital preservation (GIIN, 2018).

Risk allocation is a crucial issue for guaranteeing private sector participation in the WASH sector. There are very specific risks for commercial finance investing in WASH. Projects usually require a high initial investment and they have long payback periods, and low rates of return. The resulting infrastructure is fixed and cannot be used for other purposes. This profile generates a high contractual risk especially in a context of insufficient and/or inaccurate initial information and a weak regulatory environment. The projects' revenues come mainly from user fees or government subsidies in local currency while funding is largely provided in foreign currency, exposing the investor to high foreign exchange risk – a true constraint for international investors. Management of projects is mainly local, exposing investors to weak management and financial capabilities of sub-sovereign entities (sub-sovereign risk) (OECD and NEPAD, 2007). Table 2 highlights WASH related risks and available mitigation instruments.

Table 2: Typology of risks and mitigation mechanisms

WASH related risks	Mitigation mechanisms
Commercial: Tariff affordability and resistance Project cash-flow profile Credit risk Contractual risk Performance risk Demand and markets Information gaps/hidden costs Costs of inputs (energy)	Careful project design & review Partial Credit Guarantee: covers different events causing non-payment, including commercial risk. Offered by multilateral finance institution such as IFC and some bilateral institutions. Traditionally used by governments or public entities, but recently also by regional governments, municipalities and private companies. Pooled financing: to allow smaller cities/regions to aggregate financing needs, diversify credit risk and spread transaction costs of bond issuance.
Political: Expropriation Political interference New standards and directives Sub-sovereign agencies Local stakeholder actions Devaluation	Bilateral investment treaty, dispute resolution mechanisms embedded in contract (i.e. the Convention on the Settlement of Investment Disputes between States and Nationals of other States - ICSID) Political risk insurance: covers war and civil disturbance, expropriation and confiscation, currency convertibility and transferability (export credit agencies, investment insurers, private political risk insurers and multilaterals - MIGA) Foreign exchange risk usually covered through government exchange rate guarantees, indexation of tariffs or local finance in LCU (joint ventures with local partners, split-currency revenue arrangements: costs in LCU – local currency unit, repatriation of profits in foreign currency). Development of local capital market.
Regulatory, legal and contractual: Weak or arbitrary regulator Weak legal framework Contract enforcement	Partial risk guarantee: covers breach of contract, changes in law, licence requirements, obstruction in the process of arbitration and non-payment of termination amount. Offered by multilaterals and some bilateral institutions.
Water resource issues: Scarcity and cost Reliability; Quality; Pollution Environmental liabilities Right of indigenous people Climatic change and variability	Environmental indemnity
Reputational: Local sensitivities and needs	Communication Participation in awareness campaigns.

Source: OECD

Despite large investor appetite towards impact investing in general, there are certain bottlenecks that constrain investments into SDG 6:

- **Better ROI elsewhere**

The financial returns investors can earn in the WASH sector are often not in line with non-impact investments and even investments in other SDGs. This limits the appetite for impact investors, as they must be willing to accept “sub-com-

mercial returns” at best. However, the scenario in WASH has been changing steadily with the emergence of innovative tools like blended finance and the presence of small-scale private enterprises with robust revenue models.

- **Absence of standard reporting knowledge**

The lack of clarity about how investments are managed to achieve impact gives rise to concerns about “impact washing”, which deters

potential investors from investing in WASH. The WASH sector, particularly the SMEs, lack common standards covering what it means to manage an investment. To counter this, there is a need for an impact measurement system that ensures accountability by establishing targets, monitoring performance, and reporting results.

- **Lack of standardised impact indicators**

The limited comparability of measured impact across projects and investment managers poses a challenge to investors who are trying to allocate capital to the WASH asset class. Unlike financial returns, the assessment of WASH impact has not yet evolved to the point at which metrics, common approaches and conventions have become widely accepted. There is an urgent need to have standardised WASH impact indicators available to impact investors in the public domain.

- **Absence of enabling environment**

The institutional and regulatory frameworks around WASH in many countries, often do not support investors who seek to create impact alongside financial returns.

A desk review in 2016 of 19 developing countries in Africa and Asia studied their ability to meet criteria deemed critical for attracting private finance. The authors found that half of the reviewed countries did not meet the minimum criteria, which included attractive credit rating for service providers and utilities and domestic bank financing for WASH, and most countries did not meet WASH specific criteria, including a clear legal framework and definition of institutional roles, adequate cost-recovery ratios, and active benchmarking of service providers (Fonseca and Pories, 2017).

An interesting tool that can be used by investors to map and analyse water risks across locations is the World Resource Institute's Aqueduct Water Risk Atlas tool (WRI, n.d.). This tool tracks current levels of indicators (including physical quality/quantity risks, regulatory, and reputational risk), and also offers insights into multiple future scenarios coherent with different levels of success in achievement of SDGs.

Although there are various risks and challenges for WASH investors, there are also considerable upsides, especially if looking at the outlook of the WASH sector based on the public sector's

adaptation and the transformation of the global WASH market from beneficiary-focused to consumer-driven. Among these positive aspects are:

- **Increasing transparency in WASH**

There has been significant progress in developing a new set of operating principles for impact management in WASH. As more and more impact investors commit to these principles in their operations, there will be greater transparency in how investment funds are managed, building trust in the market, and helping investors to identify the funds, institutions, and asset managers that pursue impact in a systematic way.

- **Global need and high cost-benefit ratio**

There is a compelling economic case for investing in WASH. Recent analysis estimates that global economic losses related to inadequate water supply and sanitation reach USD 260 billion per year (OECD, 2018). The benefit-cost ratio for investments in WASH services has been reported to be as high as 7:1 in developing countries (OECD, 2011).

- **Emergence of innovative solutions**

Increased recognition of the value of water has driven innovations in the WASH sector. The growth in water-related patented inventions has been steadily increasing over the years having doubled since 1990 (OECD, 2018). With more innovation and constructive cooperation between private and public sectors, it becomes easier for impact investors to diversify their WASH portfolio, and to stabilise returns and reduce risk.

- **High impact at grassroots**

Impact investors can see significant social impact from their WASH investments, especially those for the base of the pyramid along with positive environmental impact. Since SDG 6 is interlinked with numerous other SDGs, the investments create direct, as well as indirect impact on other SDGs (for example, employment generation and better health for vulnerable groups).

2.4. Financing to MFIs/FIs

There is growing recognition of the role microfinance can play in making safely managed water and sanitation services accessible to the base of the pyramid in emerging economies. South Asia has been at the centre of microloan activities with its well-developed microfinance sector, but even with a robust sector, knowledge gaps remain around the factors that limit and facilitate the scale and sustainability of WASH microfinance operations.

It has already been established that the annual funding required to meet SDG 6 targets is well beyond the current levels of public sector and donor financing. The mobilisation of the private sector as an additional financing source is required if safe 'WASH for all' is to become a reality.

At the same time, the microfinance sector is growing rapidly across low and middle-income countries. A market study conducted for the Bill & Melinda Gates Foundation in 2008 found that the potential global demand for WASH microfinance was expected to exceed USD 12 billion over 10 years, with half of this demand expected to orig-

inate from India alone (Mehta, 2008). A more recent study valued the toilet construction financing opportunity in India at USD 6-9 billion (Shah, Thathachari, Agarwal, & Karamchandani, 2013).

2.4.1. WaterCredit

A good example of a microcredit programme in WASH is Water.org's initiative WaterCredit. PepsiCo foundation funded the initiative from 2008 to 2011 enabling Water.org to roll out WaterCredit to five microfinance institutions (MFIs) in India. More than 29,000 loans were disbursed during this period, with excellent repayment rates (98-100%), and higher return on investment (ROI) compared with traditional WASH investments. The subsequent tranche of funding facilitated the expansion of the program to 14 partners, with disbursements of more than 500,000 loans benefitting 2.1 million people. This initiative was especially beneficial for vulnerable groups by providing them credit access to avail safely managed WASH services.

Figures 8 and 9 show the evolution of disbursements during the period as well as the profile of a typical borrower of the programme.

Figure 8: Number of WaterCredit loans disbursed (cumulative), 2011-2015

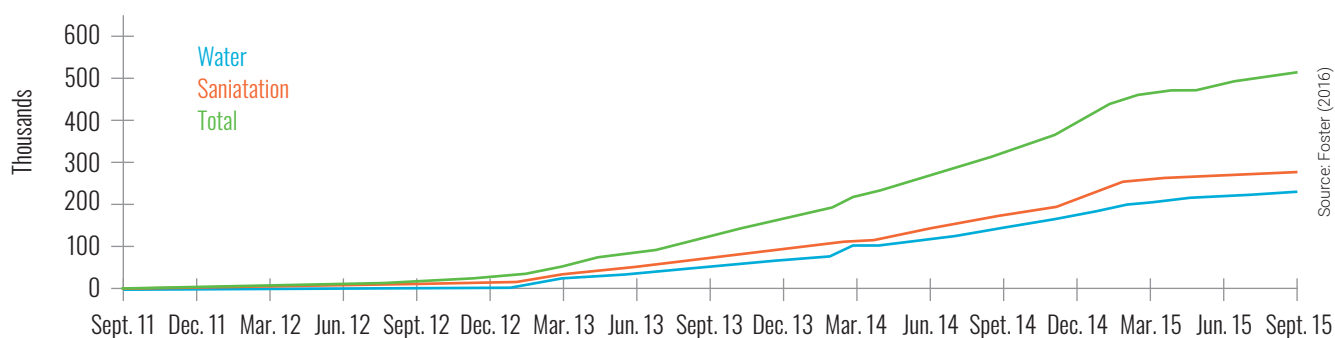
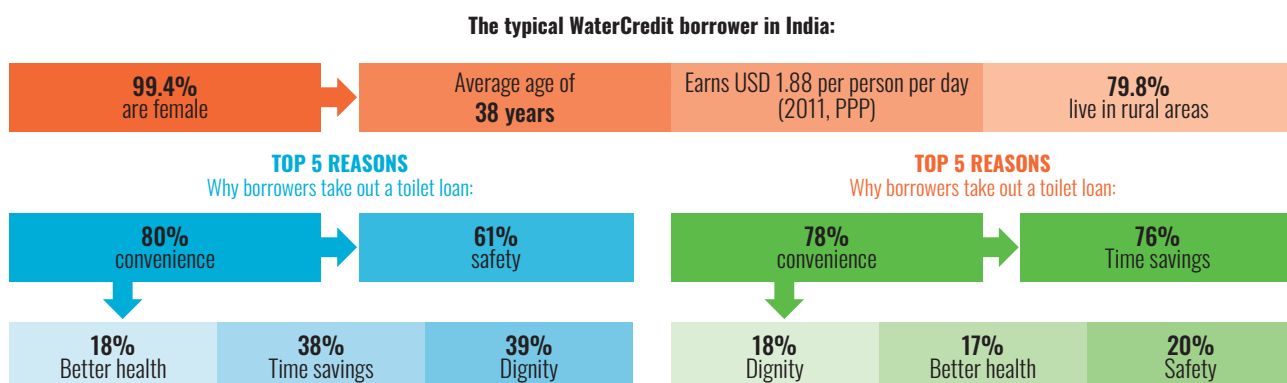


Figure 9: Profile of a WaterCredit borrower in India



Source: Foster (2016)

2.4.2. Challenges and opportunities in financing MFIs/FIs

Private sector actors financing WASH, particularly to MFIs/FIs face several challenges:

- **Poor regulatory and policy environment**

The policy and regulations around WASH in emerging economies pose a big challenge for private sector investors. Traditionally, WASH has been linked to the public sector, and governments around the world must start thinking of the bigger picture with a clear role for private sector in financing WASH.

- **Loan utilisation and quality control**

A big challenge for investors as well as their MFI partners is quality control and loan utilisation. The dearth of skilled masons and availability of quality construction material is a pressing issue in low- and middle-income countries. Additionally, it is hard for MFIs to ensure that loans are being utilised properly by the users.

The opportunities for private investors financing MFIs/FIs include:

- Several governments are mobilising to improve investment climate: Since it has been established that public capital currently flowing is not enough to achieve SDG 6, the regulatory constraints have slowly started reducing around the world. For example, WASH has now been classified as Priority Sector Lending (PSL) area by the Reserve Bank of India (RBI), which has mandated previously unwilling commercial banks to fund MFIs for WASH. As a result of the PSL classification change, it is estimated that an additional USD 40-50 billion could be released into the WASH sector (Ikeda & Arney, 2015)

- Large operational footprint of MFIs maximises outreach: The large operational footprint of MFIs is very advantageous for investors, as it helps in maximising the outreach of their capital. Since most MFIs have a network of existing branches in a geography, it is easier for them to disburse loans and reach the base of the pyramid directly. This offers tremendous potential in expanding WASH loan portfolio through further geographical expansion

2.5. Financing to SMEs

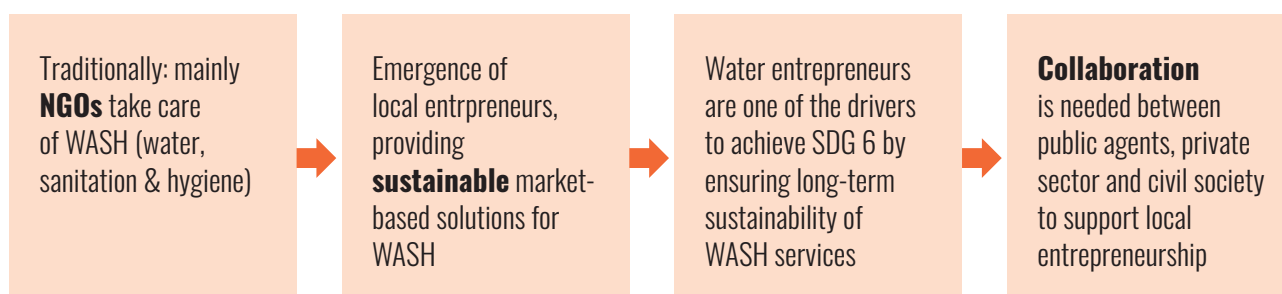
Small and Medium Enterprises (SMEs) are often the torchbearers of innovative business models in WASH. Most SMEs provide market-based solutions to support the public sector infrastructure and act as the primary interface between the bottom of the pyramid and access to safely managed WASH services. Local entrepreneurs that deliver safe water or sanitation services can contribute significantly to bringing sustainable solutions and ensuring maintenance of operations at the last mile. Many innovative WASH solutions have come from emerging economies in the past decade, and that has led to the development of a market for impact investors.

2.5.1. Challenges & opportunities in financing WASH SMEs

Although innovative SMEs are good vehicles to bring safe WASH services to the last mile, the ecosystem still requires new regulations, accountability rules, and a monitoring and control scheme.

Most barriers investors face while investing in WASH SMEs are related to the sector development, inadequate regulatory framework, and unclear revenue models:

Figure 10: Shift to sustainable market-based solutions in WASH



Source: Waterpreneurs (2018)

1 Insufficient cash flows

WASH SMEs can only access commercial finance if they are generating sufficient cash flows that can be used to repay it. This is a major challenge, but WASH SMEs have many opportunities for generating efficiency gains and diversifying revenue sources to help increase cash flows, thus being able to attract private sector investors.

2 High initial investment costs and limited scalability

WASH SMEs can have high investment costs in fixed assets (especially in certain sanitation activities) and there is uncertainty around the businesses' profitability, affecting their scale-up prospects and their potential impact on ground. As a result, many business models are considered too risky by private sector investors and do not present an attractive investment case.

3 Lack of resilient infrastructure

The lack of adequate infrastructure (electricity, roads, etc.) and capacity constraints (lack of market intelligence, ability to conduct R&D) also limit the prospects of SMEs to attract investments from the private sector.

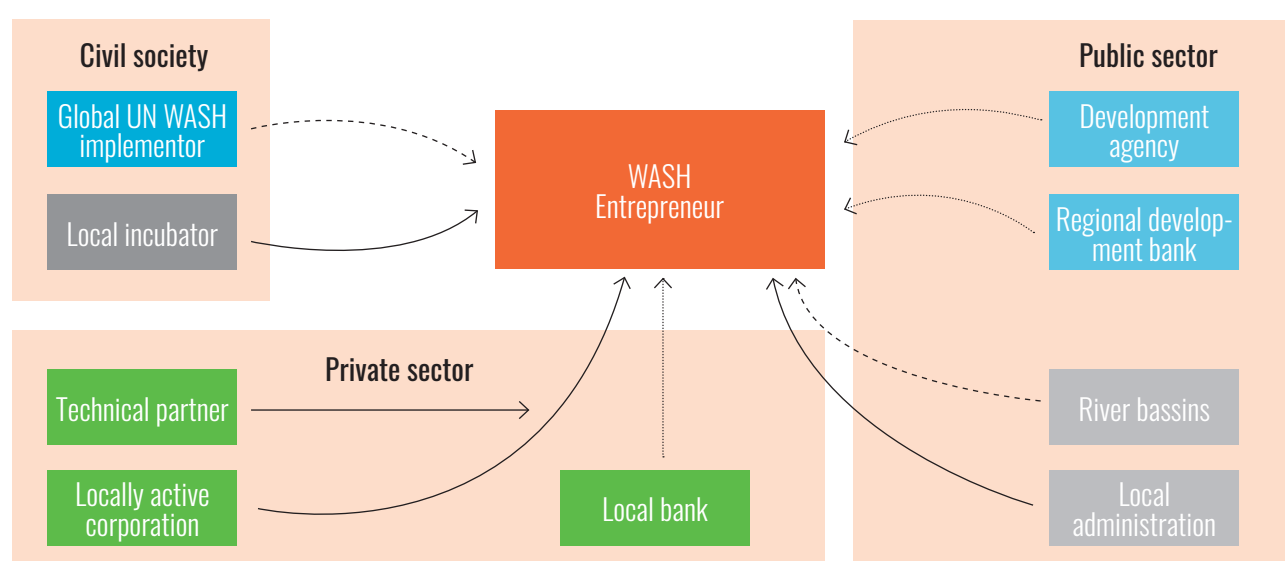
Although there are significant challenges, there has also been significant progress in de-risking investments, which have made it easier for inves-

tors to gain confidence in WASH SMEs. De-risking mechanisms include incubators, accelerators, matchmaking platforms and development agencies supporting WASH entrepreneurs throughout various phases of their growth. These considerably lower the risk for investors as SMEs get specialised support from experts. An example of a de-risking relationship map is illustrated in Figure 11 below.

2.6. Financial instruments to finance SMEs and MFIs

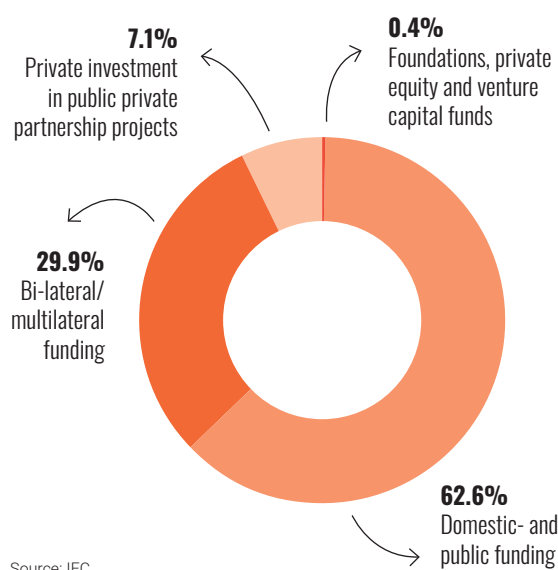
The major sources of funding that pay for WASH services are represented by the 3Ts: Tariffs, Taxes and Transfers. Tariffs are funds that come from the users of the WASH services including both the investments made by households into water supply and sanitation services as well as the monthly payment of their water bill. Taxes refer to the funds collected as domestic taxes by the central and local governments that are channelled to the WASH sector. Transfers refer to grants from philanthropic foundations and international donors, and to soft loans from Multilateral Development Banks (MDBs) that are used to provide WASH services. Figure 12 on page 22 shows the different sources of financing for WASH services across the globe.

Figure 11: De-risking pathways for investments in WASH SMEs



Source: Waterpreneurs (2018)

Figure 12: Sources of financing in the WASH sector, 2010-2015



From Figure 12 it is evident that the WASH services are largely self-financed (tariffs) or publicly funded (taxes) (62.6%). Only 7.1% are financed with private capital. The 3Ts do not cover all the costs required to meet the SDG targets under the current financing scenario. To address this global finance deficit in the WASH sector, mobilising private capital from the commercial market is seen

as the way ahead. But, unlike the public funding, private investors need financial returns for the money they are investing in WASH. Grants and concessional financing can be leveraged strategically to attract private capital via blended finance structures, which will be further explained in the subsequent sections of this chapter.

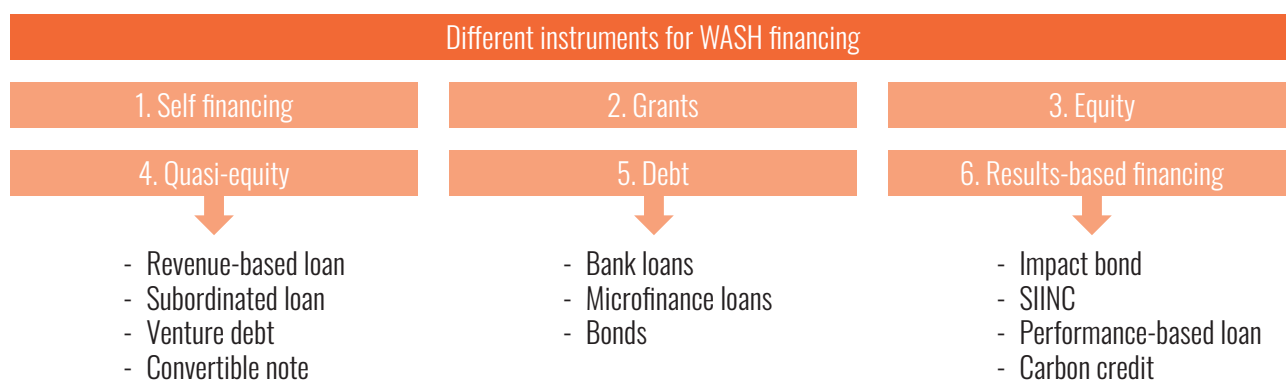
2.6.1. Self-financing

Self-financing can be defined as the investments made by households, either in cash, materials or labour to fund their needs and requirements, in this case to get access to safe drinking water and sanitation services (Luyendijk and Dooley, 2020). In their report for UNICEF, the authors found that in developing nations, households themselves invest more in WASH services than the government or donor agencies. These household investments are considered funding under tariffs.

2.6.2. Grants

Grants are transfers made in cash, goods, or services for which no repayment is required (OECD, n.d.). They are non-repayable funds provided by public institutions, donor agencies, etc. to non-profitable enterprises, businesses, or other types of organisations. Government subsidies to households are also grants.

Figure 13: Financing options in WASH



Source: OECD (n.d.), Luyendijk and Dooley (2020), SSWM toolbox (n.d.)

Table 3: Types of grants

Types of grants		
Research & Development grant	De-risking grant	Project Implementation grant
To support the development of new products and services, or to explore market/business opportunities	To provide complimentary grant funding to improve the risk/return profile of a fund or a financial institution in order to attract more private investments	To achieve development objectives

According to UNICEF, grants are categorised as transfers. Grants are given to the enterprises at the early stages of the project/business. Even though there are no financial paybacks involved in grants, the enterprises are expected to deliver their results within 1-3 years, sticking to the grant conditions and requirements (Luyendijk and Dooley, 2020). Grants are usually restricted to specific projects, they are generally constrained by specification for eligible expenses and often do not cover the full amount of required funding (SSWM toolbox, n.d.).

2.6.3. Equity

Equity is another way to invest in WASH through private WASH SMEs/MFIs/FIs. Once the enterprises are mature and start generating profits, the investors realise gains by either selling their shares to another investor, selling them back to the entrepreneurs or getting dividends on their investments. Equity investments in WASH are

often observed for urban water supply or waste management services. To lower the risks associated with this type of investment, they are often combined with international guarantees or other financial instruments (Luyendijk and Dooley, 2020). Equity can be a financing option for enterprises from an early stage onwards to public listed companies. The higher the financial valuation of the enterprise, the smaller the portion of shares the enterprise gives to the investor in exchange of the capital.

2.6.4. Quasi-equity

Quasi-equity options are beneficial to businesses who are on a growth trajectory, have strong operational returns, but have difficulties finding traditional lenders to provide the necessary capital to expand and achieve profit. Quasi-equity bypasses the lack of track-record or collateral, factors that traditional lenders consider before providing money. In the WASH sector, this investment structure

Table 4: Types of quasi-equity investments

Type of quasi-equity	Description	Characteristics	Examples of such investment in WASH
Revenue-based loan	The investor lends money to the company in exchange for a share of the company's future revenues. The company gives the investor a percentage of its future revenues until the agreed upon sum is paid back, without having to give away the company ownership.	<ul style="list-style-type: none"> • Incentivises both investors and companies to better align their interests • Not tied to a fixed amount or interest rate. • No collateral and equity dilution • Periodic repayments based on a fixed percentage of the company revenues. 	<ul style="list-style-type: none"> • Jibu (African drinking water organisation) and Cambodia Revenue Finance Facility (set up by the Stone Family Foundation in partnership with the French NGO GRET/iSEA and the Bank for Investment and Development of Cambodia)
Subordinated loan	A subordinated loan is a form of debt capital in which the creditors' risk is higher compared to other loan providers. If the enterprise goes bankrupt, the subordinated creditors will receive their payment only after the senior creditors have been fully paid back.	<ul style="list-style-type: none"> • Interest rates will be higher due to the high-risk nature of the loan • The subordinated loan acts as a catalytic fund to mobilise a volume of capital that otherwise would not have been obtained. 	Watercredit Investment Fund 3 (launched by WaterEquity) and Green Climate Fund (GCF) wherein subordinated loans have been offered.

Type of quasi-equity	Description	Characteristics	Examples of such investment in WASH
Venture debt	Venture debt is used to raise capital to supplement existing venture capital. Venture debt providers offer loans to promising enterprises in exchange of warrants (right to purchase future equity at a certain price).	<ul style="list-style-type: none"> • The amount is limited and is usually 20-35% of the company's most recent equity financing round. • Warrants can be converted into common shares at the pre-agreed price in the future equity round • It is a cheaper way to finance equipment in a company since the equipment itself acts as collateral in case of default (e.g., Water tanks) 	EqualLife Capital is an emerging private credit funds that provide alternative debt financing, including venture debt
Convertible notes	A convertible note is an innovative financing instrument in the form of a loan, which the investor can later convert into company shares.	<ul style="list-style-type: none"> • Needs less negotiation time and capital can move from investor to recipient at a faster rate • Investors can use this instrument when they see that a young enterprise has a lot of potential acting as a catalyst for the enterprise to achieve its goals • The investor receives an interest rate together with a discount on company equity after its valuation round (based on the valuation cap) 	

may be appealing to impact-oriented start-ups and businesses affected by seasonal changes because it satisfies the investors' needs while not "suffocating" the business during periods of lower income generation (SSWM toolbox, n.d.).

2.6.5. Debt

Debt is one of the most common financial instruments used in the WASH sector by financial institutions and impact investors. The most common forms of debt financing are loans (commercial banks, microfinance) and bonds. See the following case studies of Water.org and the Reserve Bank of India.

Case Study: Supporting microfinance loans in WASH – Water.org

Water.org has been successful in supporting the delivery of microcredit to individual households and SMEs through partnerships with development finance institutions (e.g., the Development Bank of the Philippines) who provide wholesale lending to local financial service providers, including microfinance institutions, cooperatives, and banks. For the past 15 years, it has indirectly reached nearly 30 million people in 13 countries, including India and Bangladesh. It has used its grant funding to charge lower interest rates for their microfinance schemes and has even occasionally extended interest-free loans to people at the bottom of the economic pyramid (BoP).

Case Study: Enabling regulation for bank loans for WASH in India – Reserve Bank of India

The Reserve Bank of India (RBI) through its “Master Circular - Priority Sector Lending- Targets and Classification” has created an enabling environment in the banking system for the provision of bank loans related to WASH. Banks can lend up to a limit of INR 50 million per borrower for building social infrastructure namely schools, health care facilities, drinking water facilities and sanitation facilities, including construction/ refurbishment of household toilets and household level water improvements. Similarly, Bank credit to Microfinance Institutions (MFIs) used for on-lending to individuals and members of Self-Help Groups (SHGs) for water and sanitation facilities will be eligible for categorisation as priority under ‘Social Infrastructure’.

2.6.6. Results-based financing (RBF)

Results-based financing provides incentives for the enterprises in exchange for the delivery of pre-agreed and verified results. RBF can take many forms and aims to improve the effectiveness and cost efficiency of the SMEs. It helps create development outcomes and thereby mobilises additional income from the funders. RBF options are open to earlier-stage enterprises, provided they manage to show the ability to deliver impact. The different types of results-based financing are explained in Table 5.

Table 5: Types of results-based financing

Type of results-based financing	Description	Characteristics	Examples of such financing in WASH sector
Impact bond	Impact bonds allow an entrepreneur to receive investments and create impact within a particular period. The investor incentive is aligned with the enterprise’s social mission since the investor’s financial return is directly related to the created impact.	<ul style="list-style-type: none"> Typically involves a private investor, a service provider (e.g., a water enterprise), and an outcome funder (a government agency). More flexible than traditional (grant) contracts. The investment is only recovered if there are positive impact results. 	<ul style="list-style-type: none"> Cambodia Rural Sanitation Development Impact Bond (partnership between the Stone Family Foundation, iDE and USAID). The Turkana Water Outcomes Facility in Kenya (Social Finance, Oxfam, and the Turkana County Government).
Social Impact Incentives (SIINC)	Financing instrument designed to incentivise impact-oriented enterprises to go the extra mile to make their products or services accessible for beneficiaries from all walks of life, particularly for the Base of the Pyramid (BOP) population.	<ul style="list-style-type: none"> SIINC are not for early-stage enterprises. SIINC is designed for growing enterprises who already have experience with soft-term investments (e.g., soft loans, equity injections, or grants) and genuinely care about impact while scaling. 	<ul style="list-style-type: none"> Roots of Impact in collaboration with Aqua for All is implementing a SIINC pilot project in the WASH sector covering Asia, Sub-Saharan Africa, and the Middle East and North Africa (MENA) regions.

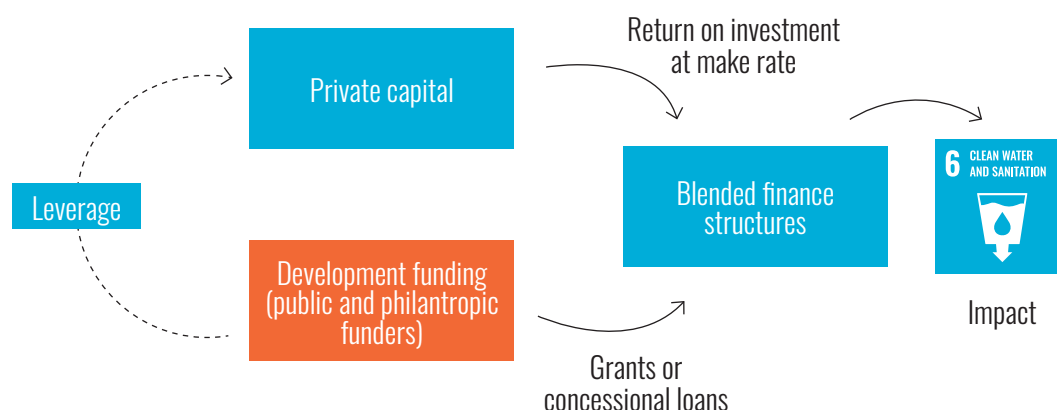
Type of results-based financing	Description	Characteristics	Examples of such financing in WASH sector
Performance-based loan	A performance-based loan is debt with a set of terms and conditions concerning interest, fees and repayment associated with the achievement of agreed goals.	<ul style="list-style-type: none"> Loan conditions, including repayment and interest rates designed to reward high impact or outstanding outcomes. 	<ul style="list-style-type: none"> Revenue financing by the Stone Family Foundation in the piped water sector in Cambodia (linking repayments to revenues and therefore performance rather than a fixed interest rate).
Carbon credit	Carbon credits are a tradable commodity that allows an emitter to compensate carbon emissions that are equivalent to 1 ton of carbon dioxide (CO2) or another type of greenhouse gas.	<ul style="list-style-type: none"> Water-related enterprises can obtain carbon credits by monitoring and certifying the positive environmental impact of relevant solutions in terms of CO2 reduction (for example, through more sustainable wastewater treatment solutions, or providing water that does not require prior boiling with charcoal or wood to make it safe for consumption) 	<ul style="list-style-type: none"> Aqua Clara has leveraged CO2 emission reduction through water treatment solutions to access carbon credits. Carbon for Water in Western Kenya (LifeStraw® Family water filters by Vestergaard Frandsen)

2.7. Financial structures in WASH financing

The most innovative form of financing in WASH is blended finance. The OECD defines blended finance as *“the strategic use of development finance to mobilise additional finance towards sustainable development in developing countries”* (OECD, 2019).

To bridge the gap between the existing financing options in the WASH sector, blended finance can be an effective financing structure. The development finance mentioned in Figure 14 indicates the concessional finance or non-concessional finance coming from the philanthropic actors, which could be either public or private. The additional finance refers to the private finance which is invested at commercial rates from private sources mainly. Blended finance is thus, a

Figure 14: Blended finance representation



Source: Luyendijk and Dooley (2020)

structuring approach that allows organisations to invest alongside each other while achieving their own financial objectives along with the social impacts, or a blend of both. The amount of private finance mobilised by blended finance for water and sanitation is only 1.36% (USD 2.14 billion) of the total private finance mobilised from 2012-2017 (USD 157.2 billion) (OECD, 2019). This data shows that blended finance models are emerging but have not yet reached scale.

2.7.1. Guarantees

Guarantees are widely used in blended financing transactions. They are an effective tool to mobilise private investment in the water and sanitation utilities and Multi-Purpose Water Infrastructure (MPWI) sub-sectors within the water and sanitation sector (OECD, 2019). For MPWI, blended finance models can pool funding from various stakeholders depending on their individual investing preferences.

Case Study: Guarantees - The Jamaica Credit Enhancement Facility

In Jamaica, a USD 3 million grant helped the National Water Commission secure a USD 12 million loan to fund a pipeline of utility projects aimed at reducing pollution from untreated wastewater. This fund also helped to expand access to piped water and sewer connections across the country. The grant ultimately served as a guarantee to an existing revenue stream in Jamaica, the K-factor, to get the additional private financing needed to solve the issues of pollution reduction from untreated wastewater (OECD, 2019).

2.7.2. Use of concessional capital to lower investment risk

After guarantees, the use of concessional capital for either public or philanthropic investments is the most common form of blended finance in water and sanitation. This model helps to lower the overall cost of capital and, in some cases, to provide an extra layer of protection to the private investors. Blended concessional finance in fact can offer a way beyond grant models to the investors that can help to build the local markets, involving more SMEs.

2.7.3. Use of grant-funded or loan-funded technical assistance to increase efficiency and bring out impact

Investors can lower the risk of their investments by increasing the projects' quality and efficiency through capacity building, improving monitoring & evaluation, and enhancing overall management capacities. Grant/loan funded technical assistance in the WASH sector can provide investors with the assurance that their investments will be utilised effectively, and the services will generate revenues along with positive impacts. In blended finance agreements with a technical assistance component, a third-party organisation will be working along with the investors and the donor agency, measuring the impacts of the funded project.

2.7.4. Public-private-partnership (PPP) model

Public-private partnerships can be one of many forms of blended finance, where the private party provides technical assistance in the WASH projects in addition to making equity investments. This form of blended finance is very common in financing public WASH utilities in many countries. Financing is required from multiple sources for the PPP model, including the public sector, the private sector and development finance institutions (DFIs). Public funds are used mainly to facilitate the process, financing the upfront costs through grants, or even addressing the funding gaps through government subsidies. Private finance sources include equity and project finance debt through private investors and lenders. Multilateral development banks (MDBs) also provide PPP projects with loans, guarantees, quasi-equity, etc. The World Bank has reported that *"between 2013 and 2017, water and sanitation PPP investments only accounted for 0.42% of total investment in International Development Association (IDA) countries and 4% in non-IDA countries"*, in its Private Partnership for Infrastructure initiative (World Bank, 2019). While this form of blended finance is common in OECD member countries, it should be extended to more developing nations where there are already several successful examples in urban water supply.

Case Study: PPP - The bulk water supply in Kigali, Rwanda

The challenge of this project was to increase access to the piped water supply in Kigali, Rwanda. The solution was found through financing “The Kigali Bulk Water Supply Project” via a public-private-partnership (PPP). The water supply plant covers 40% of Kigali’s water needs, supplying water to half a million people. Development finance of USD 60.9 million, provided in the form of technical assistance and debt covered 80% costs of the project. The remaining 20% was provided by Metito, a Dubai-based entity, as equity. The project agreement between the public and private components is for 27 years, at the end of which the Metito’s subsidiary ‘Kigali Water Limited’ will transfer the plant to the Water and Sanitation Corporation of Rwanda, the sole off-taker of the plant (OECD, 2019).

3

TACKLING THE CHALLENGES IN WASH

The WASH ecosystem globally faces numerous challenges including (but not limited to) a financing gap, limited profitability of WASH businesses, and traditional tariff systems. A good way to tackle the challenges associated with WASH is by developing affordable and aspirational WASH products and increasing social marketing campaigns. Not all customers can afford safe drinking water and sanitation services, especially in developing countries, where people often find it challenging to pay for these services up front. Typically, they would have to save up money over time to avail of such services due to lack of steady income or access to local financial loan options. Targeted subsidies can increase WASH access for customers in developing countries, but subsidy funding alone will not solve the issue of access. The financing gaps in the sector need to be filled (iDE, n.d.).

Some ways of tackling these financing bottlenecks in WASH are summarised below:

Bridging the funding gaps

Along with public funding, donors and private funders can help bridge these financing gaps by providing adequate funding to the sector through innovative and impact creating measures. Kiva.org is a financing partner for development projects offering interest free loans and allowing for smaller and low risk lending. This incentivises local partners to extend smaller loans to the customers/enterprises who do not have income generating businesses (e.g., for WASH products). And thus, organisations like Kiva can bring about greater impact in terms of access to the WASH services by the low-income households. But in this model, there is often significant delay between the loan application and the disbursement of the same. In such cases, donors and investors

can help bridge this gap by pre-financing loans awaiting Kiva approval through a *float fund*. A float fund will allow the local partners to disburse the smaller loans while waiting for Kiva's funding to be processed. This type of funding is useful in developing countries with volatile local currency, where the investor funds could be held in interest-bearing USD accounts until the fund is disbursed by Kiva (iDE, n.d.).

Making the assessment and collection process easier

Lack of access to WASH products and services by low-income households can be treated as a subset of access to finance. Donor and investor funding can be used to accelerate access to finance in the poorest locations by specialising in funding for data collection and mobile money enterprises. As mentioned earlier, the lenders often hesitate to offer small-value loans to smaller enterprises because of the repayment risks and high transaction costs. Alternative credit assessment methods can possibly cut down the time and costs regarding the whole collection process. This will also help the lenders to determine the creditworthiness of the SMEs or customers who do not have a regular income. There is growing evidence that WASH loans carry no more risk than those that have traditionally filled lender portfolios. In Cambodia, for example, iDE has observed that sanitation loans have lower default rates (less than 2%) than the average MFI portfolio (iDE, n.d.). Another example is from the WaterCredit Initiative by water.org which allows for provision of small loans to avail of WASH services. The loan repayment rate as reported by water.org is 99%, which is better than many traditional MFI portfolios.

Case Study: Creditworthiness assessment - Cignifi

Cignifi examines customer call and text records along with prepaid phone payment history and uses this information to assess how likely customers will take up financing offers and their behaviour regarding paying back their loans. This allows for a reduction of customer acquisition costs for lenders by an average of 55% (iDE, n.d.).

Case Study: Creditworthiness assessment- Entrepreneurial Finance Lab (EFL)

EFL uses psychometric surveys to assess creditworthiness of the customers or SMEs. The surveys are adapted to the local country context and language for better estimations. For example, to estimate the creditworthiness of a SME, they will compare the response given by the entrepreneur on business skills, attitude, and business ethics to those of similar entrepreneurs in the same country or globally (iDE, n.d.).

Digital repayment of loans

Collection of disbursed loans is the most time consuming and expensive part of financing, especially if the lenders must collect the payments themselves. In-person collection often delays the loan application process if there is a shortage of staff to look after both processes. Mobile money/digital payment options can streamline this collection process, saving staff time and programme costs. For example, 30% of iDE Ghana's Sama Sama toilet instalment payments are collected through a mobile money service offered by the telecom MTN. Increasing this to 70% or 80% would reduce the cost of collections. This option is also beneficial for the customers since they can cut down their travel costs and waiting time at the brick-and-mortar branches.

Maximising local small-scale private sector involvement in WASH provision

Small-scale private sector entrepreneurs can play a very important role in supporting sustainable improved WASH services, these providers include small scale water network operators, sanitation product retailers and installers, self-employed pit emptiers, etc. They may perform better in the market in terms of supplying the services that large-scale enterprises are unable to provide (WASH utilities) as they are often capable of maintaining closer relationships with

the local customers, thus gaining the trust of people to whom they provide services and increasing their efficiency. Financing institutions and governments can catalyse these contributions and leverage local small-scale private-sector finance by providing direct funding to private-sector operators or investing in programmes and systems that encourage private-sector engagement (Norman *et al.*, 2012).

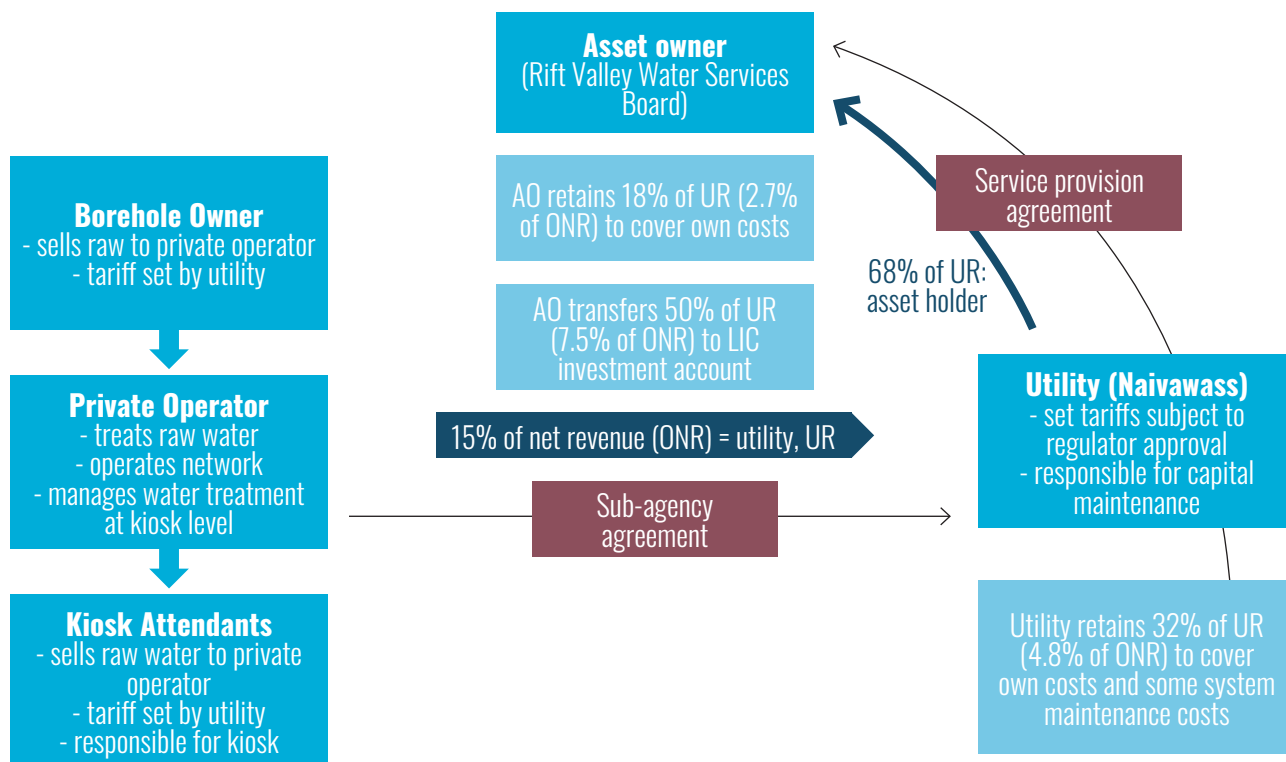
Case Study: Small-scale delegated management of a local water network - Kenya

The people in Mirera and Karagita regions living in temporary settlements near Lake Naivasha, used to get drinking water from donkey-cart vendors. The water was expensive and was often contaminated, having for example high fluoride content. Since these settlements were outside the range of town-based service providers, the challenge was to set up a service delivery system whilst finding new ways of financing improved water services to these underserved settlements.

A tri-partite service delivery agreement was signed between the Rift Valley Services Board, the Naivasha Water Company, and private borehole owners to solve this problem (see Figure 15). The agreement, developed by Water & Sanitation for the Urban Poor (WSUP), defined roles and responsibilities for ownership, maintenance, and capital replacement. A project steering committee was established, and extensive consultations were done with stakeholders to develop the financial arrangements. Financial modelling was used to ensure sustainable cost recovery, capital maintenance, and for service expansion.

This system served more than 6,000 people through 8 water kiosks in January 2011, providing safe drinking water, cooking water, and cheaper untreated water for washing and laundry. And it was useful in reducing the cost of water for low-income consumers by 90% and increasing the proportion of safely managed water by 20%.

Figure 15: Navaisha delegated management model



AO: Asset Owner, **ONR:** Operator Net Revenue, **UR:** Utility Revenue, **LIC:** Low Income Community.

Source: Norman et al. (2012)

Water-to-sanitation cross-subsidisation

Financing and implementing improved water and sanitation services is challenging. Cross-subsidising both the water and sanitation sectors could be a solution. This means using water revenues to support the investment and recurrent costs of providing sanitation services. In many developed countries, cross-subsidisation is already in place, with water supply and sewerage being operated by the same utility company and sewerage services charges being included as a percentage of the water bill. But there are also some examples of cross-subsidisation in developing countries - including Manila in the Philippines, Ouagadougou in Burkina Faso and Dakar in Senegal (Norman et al., 2012).

Introducing innovative water tariff systems

The existing tariff systems in most cities in Africa and Asia often fail to achieve both financial stability and improvement in the WASH sector. The per-litre tariff system, for example, is often too low to achieve financial stability while the con-

Case Study: Water-to-sanitation cross-subsidisation – Manila, the Philippines

In 2012, the major challenge associated with solving the WASH issues in Manila was access to the services by rural households. The city had 55% of its area networked with sanitation connectivity, with 100% emptying services for the remaining latrines and septic tanks, a mix of both centralised and decentralised sanitation management system. The key factor that helped Manila to achieve these goals was the cross-subsidisation of sanitation from water revenues. Users were invited to receive network water, rather than forcing them to do so. Most have accepted because lower prices and better services were provided to them. As a result of this, most of the independent suppliers have ceased operations in Manila. Sanitation connections were financed through charges, the charge of and individual connection being 6000 pesos (USD 140), which is payable over 12 months through water bills. Payments centres were also established to make the payment process easier for the customers (WSUP, 2012).

nection charges are still high for poor consumers. This eventually leads people to make illegal connections to the water supply network while water utilities are hesitant to invest in poor communities due to the fear of low revenue generation. The solution for this problem is simple yet politically challenging: make the per-litre tariffs high enough to achieve financial stability while reducing the connection fee for low-income consumers (Norman *et al.*, 2012). The following case study from Mozambique is a successful example of application of this tariff model.

Case Study: Innovative water tariff model - Mozambique

In Mozambique, the water-sector asset manager and investment agency (FIPAG) and the water sector regulator (AURA, former CRA) have worked to establish funding mechanisms that aim to improve services to the poor while also increasing service providers' efficiency in the capital Maputo and other towns and cities in the country. In 2010, FIPAG reduced the connection charges by 50% and has enabled payments over a 12-month period, resulting in a significant increase in the connection rate among low-income residents, who previously paid substantially higher per-litre fees for lower-quality water from informal providers (on average about 40% more).. This connections policy has cost FIPAG around USD 75 per connection, which was seen as an investment rather than an operational loss and compared to an estimated annual loss per illegal connection of USD 210. This is a good example of how the model can be successful and how relevant in this success was the strong political support from the Mozambique authorities (WSUP, 2012).

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About the European Microfinance Platform (e-MFP)

The European Microfinance Platform (e-MFP) is the leading network of organisations and individuals active in the financial inclusion sector in developing countries. It numbers over 130 members from all geographic regions and specialisations of the microfinance community, including consultants & support service providers, investors, FSPs, multilateral & national development agencies, NGOs and researchers. Up to two billion people remain financially excluded. To address this, the Platform seeks to promote co-operation, dialogue and innovation among these diverse stakeholders working in developing countries. e-MFP fosters activities which increase global access to affordable, quality sustainable and inclusive financial services for the un(der)banked by driving knowledge-sharing, partnership development and innovation. The Platform achieves this through its numerous year-round expert Action Groups, the annual European Microfinance Week which attracts over 400 top stakeholders representing dozens of countries from the sector, the prestigious annual European Microfinance Award and its many and regular publications.

About Aqua for All

Aqua for All is a foundation operating primarily in Africa and Asia. For over two decades, we have worked towards catalysing an innovative, sustainable and inclusive water and sanitation economy worldwide.

We believe that innovation, scalable solutions, and public and private capital are needed to bridge the service and financial gap to achieve SDG 6 – Water and sanitation for all.

We use grants to accelerate providing access to water and sanitation to low-income households and institutions. We do this by supporting innovations and scaling up enterprises until they are investment ready, without distorting the market. In addition, we use our funds to mobilise private and public capital to increase investments in water and sanitation. We are Making Water Count!

For more information, please visit: aquaforall.org

About the e-MFP WASH Action Group

The e-MFP WASH Action Group was created in 2021 to answer to a need shared by some e-MFP members, particularly investors, to better understand the Water, Sanitation and Hygiene (WASH) sector and its relevance for low-income populations in developing countries, and to be able to identify investment opportunities in the sector.

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