

TEN ACTIONS FOR FINANCING WATER INFRASTRUCTURE

WORLD WATER COUNCIL REPORT





The World Water Council is an international multi-stakeholder platform organization, the founder and co-organizer of the World Water Forum. The Council's mission is to mobilize action on critical water issues at all levels, including the highest decision-making level, by engaging people in debate and challenging conventional thinking. The World Water Council, headquartered in Marseille, France, was created in 1996. It brings together over 300 member organizations from more than 50 different countries.

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TEN ACTIONS FOR FINANCING WATER INFRASTRUCTURE

WORLD WATER COUNCIL REPORT
FINANCING WATER INFRASTRUCTURE TASK FORCE
WORLD WATER COUNCIL

Prepared by
Alex Money

FOREWORD



The World Water Council, through its work with experts and long-standing partners, has always considered the issues related to financing water infrastructure as a high priority.

We are aware of the crucial role that infrastructure plays in minimizing risks of water scarcity, floods, climate exposure, water pollution and inadequate access to water supply and sanitation. Yet, we also know that there is not enough investment flowing towards water infrastructure to be able to bridge that gap.

Financing water infrastructure and closing the investment gap – between what is invested and what is required – should be a major global concern, as all countries are affected. It is a multi-faceted issue, which affects economic growth, food and energy security, and human and environmental health.

Benedito Braga
President
World Water Council

A handwritten signature in black ink that reads "Ben Braga". The signature is fluid and cursive.

Now more than ever, it is important to further promote concrete and operational recommendations at the highest level to improve the financial system effectiveness in mobilizing more capital towards investment in sustainable and resilient water infrastructure. Therefore, this Action Report aims at identifying the obstacles that are hindering investment in water infrastructure, finding solutions on how to overcome them and eventually unlocking the necessary funding to be able to achieve Sustainable Development Goal 6: Ensure availability and sustainable management of water and sanitation for all.



Investment needs for financing water infrastructure are colossal. And the current rate of investment will not allow us to achieve Sustainable Development Goal 6: “Ensure availability and sustainable management of water and sanitation for all.”

This difficult situation is amplified by new challenges brought on by climate change, population growth, agricultural activities, and energy production, among others.

Most actors involved in water know that financial flows, public or private, are strikingly insufficient to be able to reach a water-secure world. At the same time, significant amounts of capital are available on financial markets. Yet, they are not invested in water, but rather in telecommunications or technologies, which are considered to be more attractive investments.

The objective of the work of the World Water Council Task Force on Financing Water

Bernard Guirkinger
Chair of the Task Force on Financing Water Infrastructure

Infrastructure is precisely to better understand what barriers are preventing investments in water. Our goal is to make pragmatic and operational recommendations that will increase financial flows towards sustainable water infrastructure.

Overcoming water-related challenges would not only improve health and well-being, it would simply allow billions of people to improve their quality of life, gain access to education and work, all reaching towards sustainable development and growth.

Our work is far from over. The 8th World Water Forum in Brasilia, Brazil is but one step in the road towards mobilizing a significant international dynamic for financing water infrastructure and ensuring water security.

ACKNOWLEDGEMENTS

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This report was written by Dr. Alex Money, Programme Director at the Smith School of Enterprise and the Environment, University of Oxford; and consultant to the World Water Council for this work programme.

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Any errors, omissions, or subjective opinions are the author's alone.

INTRODUCTION

There is a large and growing body of evidence that underlines the strong causal relationship between water security and economic growth. Achieving water security requires appropriate investment in infrastructure, capacity building and project development. However, there is a big gap between current investment in these key areas, and the amount that is required if the UN Sustainable Development Goals (SDGs) are to be met by 2030.

Efforts to quantify this difference are more of an art than a science, but there is some consensus that the overall 'infrastructure gap' approximates US\$ 1 trillion per annum, of which water accounts for 15-30% (compared to a historic investment share of just 6%). A precise forecast is anyway unnecessary: what matters is whether the gap is being closed. Here, the indicators are discouraging. As things stand, the infrastructure that is necessary to make the SDGs achievable will not be financed; and what is more, changes to the status quo do not appear to be imminent.¹





AIM

The aim of this short report is to identify a series of actions that could help to bridge the financing gap for water infrastructure. The report considers both the supply side (i.e. the availability of suitable infrastructure projects) and the demand side (i.e. the availability of suitable infrastructure finance) of the equation. Our mandate allows us to travel at a slight tangent to the well-documented literature on project preparation and financing. We consider the barriers that remain in place despite the apparent abundance of cheap capital, and emphasise the operational and practical functions that innovation – in various forms – can deliver to help lower these barriers. Of course, we recognise that the challenges are complex, and that progress is already being made in various forms. As such, the recommendations we set out are incremental, and explicitly designed to build upon existing initiatives.



CONTEXT

Nearly 15 years have elapsed since the World Panel on Financing Water Infrastructure, chaired by Michel Camdessus, articulated the challenge. A task force was subsequently established, chaired by OECD Secretary General Angel Gurría, which published recommendations in 2006 that emphasised the need for innovative mechanisms that enhance local government access to financial resources. In 2015, a report was published by the High Level Panel on Financing Infrastructure for a Water-Secure World; an initiative of the World Water Council and the OECD. It focused, amongst other things, on multi-purpose infrastructure, an enabling environment, competition, innovation and efficiency. And last year the World Bank produced a paper for the High Level Panel on Water that called for a new sector financing paradigm based on greater collaboration between stakeholders. While these reports have been well received – and indeed have catalysed several other initiatives – many of the original challenges identified by the Camdessus panel focused on solutions involving government intervention. Less progress has been made on co-opting other actors, such as institutional investors, project developers, private sector enabling organisations, Development Finance Institutions (DFIs), research institutes and others. This wider engagement remains pre-requisite to achieving a scalar transformation in financing water infrastructure, and underpins the Council's motivation to produce this report.

STRUCTURE

We identify ten discrete issues that we associate with barriers to investment in water infrastructure. We recognise that some issues are more important than others; and moreover, that there are many other issues beyond the ten identified here that can play an important role in governing the finance of water infrastructure. Members of the Council's Taskforce identified several of these in their review of this paper, including the question of water as a common good; environmental and social safeguards; political instability; operational complexity; asymmetric time frames; strategic planning; regulation and the rule of law; institutional coordination; and governance. Each issue included in this paper is framed as an action; and summarised on one page with some contextual information, along with a recommendation.



The recommendations we make are for the most part directed right back at multi-stakeholder platform organisations such as our own. Most of the barriers we identify are already well known and understood. But there appears to be little consensus amongst the wider stakeholder community both on where to go from here, and also on how to get there. In identifying a set of occasionally provocative actions, we propose an outline roadmap of sorts. We do not anticipate unanimous agreement on the directions we suggest. But what we hope to generate is some critical input from the range of actors that we identify above. This input is both desirable and necessary in informing the next stage of our work. Our aim is to deliver a set of empirically grounded, scalable programmes that engage both public and private sector actors, principally by appealing to their rational self-interest.

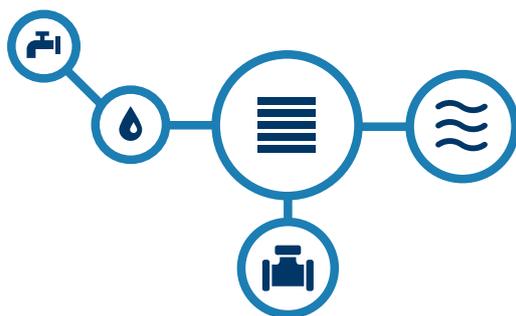
OUTPUTS

The first substantive outputs from this initiative – focused on two or three of the actions outlined in this paper – are scheduled to be presented at the 8th World Water Forum in Brasilia, in March 2018. Our timeframe is tight, but the challenge is commensurately urgent. We therefore warmly encourage you to contact us at the earliest opportunity with your comments. Your contribution will materially improve the quality of the work that we ultimately deliver.

THE ACTIONS

- 1 | Develop a Typology of Water Infrastructure Projects
- 2 | Develop a Typology of Water Infrastructure Investors
- 3 | Broaden the Attribution of Risk and Return
- 4 | Renew the Emphasis on Public Finance
- 5 | Exploit the Opportunities of Purposed Finance
- 6 | Optimise the Value of Development Finance
- 7 | Improve Project Selection and Development
- 8 | Distinguish between Capex and Opex
- 9 | Explore Hybridity and Blended Finance
- 10 | Revisit Tariffs, Taxes and Transfers (3Ts)

1



DEVELOP A TYPOLOGY OF WATER INFRASTRUCTURE PROJECTS

A typology of water infrastructure will help to align specific projects with the most *appropriate* funding available. Classifiers include **scale** (e.g. from watershed to street); **status** (e.g. greenfield or brownfield); **function** (e.g. water supply, waste water management); and **operating environment** (ownership, governance and regulation).

CONTEXT

The generalist literature around infrastructure financing often treats water infrastructure as a single, fungible entity, without providing consideration to the specific attributes of different types of project. Water infrastructure operates from the scale of the river basin or catchment through ‘buried infrastructure’ to the household tap. It covers upstream functions including pumping, diversion,

transportation, storage, treatment and distribution. Downstream functions such as sewerage, treatment and sanitation services are also heavily capital intensive. A distinction is sometimes made between water services and water functions, particularly when identifying and attributing economic value. However, from a financial investment perspective, other methods of categorisation may be more salient.

Water infrastructure is capital intensive, with finance necessary to cover upfront construction costs that are typically repaid over long periods. Projects as diverse as water supply and sanitation, flood protection, irrigation, reservoirs etc. embed different levels of capital intensity and repayment periods. They bear distinct credit, commercial and legal risks; and offer varied economic, financial and social return.

Generic descriptions of water infrastructure may lead to knowledge asymmetries between the supply side (governments, technical partners, developers) and the demand side (project financiers, investors). In practical terms, this may mean that developers are not as aware of the funding sources that might be particularly appropriate for a project; while investors do not have easy access to a project pipeline that most closely fits their requirements. Aligning specific projects with funding sources whose investment mandates match the project's attributes could reduce the frictional costs associated with project financing; accelerate the pace at which projects are funded; and increase the probability of projects finding appropriate funding.

There are various classifiers that might be applied to a typology, including scale, function and the operating environment. In addition, specialist funds may focus on the sustainability profile of a project, and the extent to which the infrastructure is 'natural', or 'green'. The proposed financing and ownership arrangements (e.g. Build, Operate, Transfer (BOT)/ Build, Own, Operate, Transfer (BOOT) etc.) may also be salient, as well as the broader governance and regulation framework.

RECOMMENDATION

Agree a codified typology of water infrastructure using multiple classification layers. Based on this typology, develop an open-source aggregation framework through which governments, technical partners and others can log and self-classify water infrastructure projects, subject to external validation and scrutiny.

2



DEVELOP A TYPOLOGY OF WATER INFRASTRUCTURE INVESTORS

A typology of investors will help to align specific projects with the most *accessible* financing that is available. Classifiers include **source** (e.g. public, private, concessionary); **risk and return appetite** (e.g. economic, social, financial); and **mandate** (e.g. time horizon, objectives, impact).

CONTEXT

Governments are and will remain pivotal investors (see 4, below) in water infrastructure for the foreseeable future; particularly within Emerging Markets and Developing Economies (EMDEs). However, given the pressure that some public sector balance sheets are under, there is an urgent need to better identify the projects that need government investment to be viable, and projects that can be financed

principally or solely from private capital. Improving the classification of infrastructure projects (see 1, above) helps to identify the most appropriate sources of finance. But it is just as important to identify the most accessible sources of finance, which is the purpose of a typology of investors. Used in conjunction with a project typology and risk framework, it can help decision makers identify and prioritise projects that are both

a) strategically imperative and b) unlikely to be financed without government support.

There is a big, blurred space between public and private investment that is occupied by entities including Multilateral Development Banks (MDBs) and Sovereign Wealth Funds (SWFs). These investors can make a material contribution to closing the infrastructure finance gap. In order to maximise this potential, their mandates and motivations must be understood clearly and incorporated transparently within the investor typology.

In terms of private sector investors, it is well noted that there is a lack of financial innovation in water infrastructure, including hybrid instruments (see 9, below), insurance products, and asset classes for institutional investors. Given the financing gap is acute in EMDEs, increasing these allocations is both necessary and desirable from both the demand and supply side: particularly as the long-term liabilities of pensions and insurance plans match the long-term asset profile of infrastructure.

That this has not happened partly reflects the heterogeneous attributes of commercial lenders, insurers, institutional investors

and others. Commercial banks, pension funds, insurance companies, mutual funds, hedge funds and others each have different performance objectives, risk tolerances, income preferences, time horizons, information resources, sector knowledge and so on. A typology that classifies these different sources of finance against their various mandates will help improve access to funding.

RECOMMENDATION

Build upon existing investor typologies using multiple classification layers. Based on this typology, develop an open-source aggregation framework through which investors can self-identify their mandates and preferences. The database should be supplemented by validated information on actual investments made.

3



BROADEN THE ATTRIBUTION OF RISK AND RETURN

The ‘bankability’ of a water infrastructure project is a function of its *perceived* risk and return. Infrastructure risk is commonly deconstructed into exposure and uncertainty, while measures of return are almost exclusively financial. However, the **counterfactual risk of *not financing*** infrastructure should form part of the evaluation process.

CONTEXT

Risks linked to investment in infrastructure projects are typically classified into political and regulatory risks; macroeconomic and business risks; and technical risks. Political and regulatory risks generally arise from government actions, the behaviour of government contracting agencies, or broader uncertainty associated with the policy environment. Macroeconomic and business risks arise from volatility

in economic variables such as inflation, interest rates and exchange rates, or shifts in the business cycle. Technical risks are related to the competence and skill required to manage the strategic and operating complexities of a project. Risks can also be classified in terms of a project’s lifecycle; from the development phase, through to the construction, operational and termination phases.

Some excellent literature has been recently produced on managing these risks. In terms of government actions, it is proposed that political risks might be reduced making credible and long-term commitments to public-private partnerships. Business risks could be mitigated through proactive use of fiscal and monetary instruments, while technical risks can be managed through robust vetting of operators and contractors. In terms of private sector actions, companies can either retain and manage risks through well-designed internal procedures, or can transfer risks through financial (e.g. insurance) or non-financial contracts (e.g. supply and purchase agreements).

However, another way to think about risk is from an outcomes perspective. Rather than the political, business and technical risks of delivering a project, ‘counterfactual risk’ can be classified by the economic, social and environmental consequences of non-delivery. By applying a robust and consistent methodology to evaluate counterfactual risk, project selection can be improved. In terms of finance, beyond direct returns on investment (e.g. from the income derived through water rates), the return benefits from improved water security could

be downscaled to a project-specific level, which could better align projects to different sources of capital (e.g. impact investors).

RECOMMENDATION

Research on risk and mitigation in delivering specific infrastructure projects should be supplemented by programmes to understand the economic, social and environmental risks of non-delivery. This analysis should be aligned with the returns on investment derived from improved water security; and connected to existing research in this area.

4



RENEW THE EMPHASIS ON PUBLIC FINANCE

SDG 6 will not be achieved without **predictable** and **dedicated** flows from the *public sector* towards meeting the financing requirements of water infrastructure. Delivering universal and equitable access to safe and affordable drinking water for all by 2030 requires a re-affirmation of the centrality of public financing for the next decade.

CONTEXT

Traditionally, infrastructure investments have been financed by both the public and private sector. In recent decades, a consensus has emerged regarding public sector indebtedness that has helped to bolster the narrative that alternative sources of financing infrastructure are both necessary and desirable. This narrative has become more strident in the era of fiscal austerity and balance sheet recapitalisation that has followed the credit crisis of 2008-9.

However, in the aftermath of that crisis, the share of infrastructure spending by the public sector actually went up, due to the flight of risk-averse private sector capital. This function of ‘automatic stabilisation’ helps to mitigate the social and economic consequences of a recession. Moreover, public finance accounts for the majority of infrastructure investment in the emerging markets today, and will continue to do so for the foreseeable future. In addition to

annual budgetary flows, public finance is increasingly flowing to infrastructure assets via SWFs; where assets under management have more than doubled in the last decade to over US\$6.5 trillion, and the proportion of SWFs investing in infrastructure has increased steadily, to 62%.

Although it may not be a 'pure' public good, many people may benefit from water infrastructure without directly having to pay for it, while their use of this infrastructure does not prevent others from doing so. This combination of attributes is generally only present in publicly funded infrastructure. What is more, these attributes are fundamental to the concept of universality that is embedded in SDG 6. It is therefore difficult to see how this goal will be met, unless public finance occupies a central role.

Economic volatility, the rise of SWFs and the urgency of the SDGs therefore combine in a renewed emphasis on the public sector in financing water infrastructure. Governments are also the core unit of accountability and delivery needed to downscale from general discussion of the infrastructure gap, to the specific needs of a national population.

RECOMMENDATION

Re-emphasise the importance of allocative efficiency in public finance, in delivering universal access to water and sanitation, for example by benchmarking national projects against the eight targets of SDG 6. Refresh measures of accountability and impact to reflect global best-in-class approaches from the public and private sector.

5



EXPLOIT THE OPPORTUNITIES OF PURPOSED FINANCE

Exploiting the expanding universe of *specially purposed finance* is key to bridging the infrastructure gap. Emerging opportunities emphasise low carbon, climate resilient sustainable growth. They include **climate finance** (e.g. green bonds); **corporate investment** (e.g. sustainability bonds); and **regional initiatives** (e.g. China's One Belt, One Road).

CONTEXT

At COP 21 in Paris, countries committed to mobilising no less than US\$ 100 billion per annum in climate finance from 2025. The Green Climate Fund (GCF), the de facto mechanism for aggregating and disbursing this investment, currently has over US\$ 10 billion in assets. The relationship between water infrastructure and climate change mitigation and adaptation does not need to be rehearsed here, but the GCF could –

and should – represent an important source of incremental financing for the sector. Meanwhile the global green bond market has grown ten-fold over the past five years, with issuance in 2017 likely to exceed US\$ 130 billion. The investment case for 'nature-based' water infrastructure (see 1, above) is strong, and growing. The requirement now is to identify appropriate opportunities.

Corporate sustainability investment is a nascent area that has its origins in corporate social responsibility, and responsible investment. In order to manage environmental risk and enhance their social licence to operate, companies are increasingly engaging with suppliers, customers and policymakers in markets where they rely on water infrastructure. As their understanding of the risks they face from inadequate water infrastructure improves, companies are considering more innovative approaches to the financing challenge.

Regional initiatives to boost economic growth and trade often include an element of infrastructure financing. The most prominent current example is China's One Belt, One Road (OBOR) initiative to develop new overland and maritime trading routes: the scale is ambitious, with an estimated US\$900 billion of projects already planned or underway. Even where these projects are not directed specifically towards the water sector, the flow of funds lowers investment costs by freeing up otherwise committed capital. Strategic alignment of water infrastructure projects with purposed, regional initiatives such as OBOR provides another avenue to close the financing gap.

RECOMMENDATION

Apply a coordinated and lateral perspective to water infrastructure investment, by exploiting the expanding universe of specially purposed financing. Climate bonds, corporate sustainability investment and regional economic initiatives provide new and largely untapped sources of capital.

6



OPTIMISE THE VALUE OF DEVELOPMENT FINANCE

Development finance can play a unique role in *convening* investors and financiers to collaborate on complex projects that would otherwise be out of scope for any single financing institution. By coordinating **preparation, structuring and implementation**, DFIs can materially improve the pipeline of bankable projects.

CONTEXT

Three of the major barriers to private investment in infrastructure are: i) a weak pipeline of viable projects; ii) a perception that the risk is too high; and iii) emerging market infrastructure is not universally understood as an asset class. To improve the pipeline of projects, MDBs are increasingly working in partnership with governments and private sector financiers. For example, the Global

Infrastructure Facility (GIF) provides grants to governments to fund early-stage project scoping. The grants, typically in the order of several thousand dollars, do not need to be repaid. The GIF also provides up to several million dollars to fund full Project Preparation and Structuring Activities (PPSA). As PPSA costs must normally be repaid, it can act as a deterrent to project development. However, the GIF bears full

PPSA failure risk, offsetting this by making funding conditional on the deployment of its own technical team who (in principle) can leverage global best practice to maximise the chances of success.

MDBs can also co-ordinate facilities to provide technical partners with first-loss cover on e.g. construction, regulatory, debt servicing and foreign exchange risks. In addition, MDBs are in the position to provide conditional refinancing options that reduce the capital requirement burden on commercial financiers considering long term infrastructure loans. Other capabilities that could be developed include tools for project assessment, an asset recycling program and financial benchmarks for investors, such as emerging markets infrastructure debt index.

Through these key functions of convening and co-ordination, MDBs can play a catalytic role in mobilising private investment into water infrastructure. These functions leverage the unique strengths of MDBs, whose advisory partners include pension funds, SWFs, insurance companies, fund managers, commercial banks and other financial institutions. By making relatively small grants MDBs can

remove the disincentive to developing project pipelines, and in making PPSA funding conditional, there is the scope, at least, to crowd in best practice and build capacity.

RECOMMENDATION

Development finance institutions are uniquely positioned to help strengthen infrastructure project pipelines, mitigate risk, and improve the visibility of emerging market infrastructure as an asset class. Technical partners should leverage their expertise in project identification, selection and preparation to help DFIs close the bankability gap, and optimise the value of development finance.

7



IMPROVE PROJECT SELECTION AND DEVELOPMENT

The infrastructure gap can be partially bridged *without additional finance*. Focus areas include **upstream development** (pipeline building); **project selection** (portfolio optimisation); **programme delivery** (investments in design and planning); and **asset utilisation** (getting more out of existing projects).

CONTEXT

One obvious way to reduce the quantum of funding needed for infrastructure spending is to improve the productivity of the money being spent. Developing an upstream pipeline of prospective new projects is key to creating choice and improving selection. By working with MDBs, technical partners and others (see 6, above), governments can widen and deepen the pool of prospective projects for evaluation.

However, an effective downstream process is still necessary. Research suggests many countries apply suboptimal process to select, build and operate infrastructure, with poor decisions being made on project selection due to inaccurate forecasting and weak planning.

However, by revisiting the process of project selection, infrastructure portfolios

can be optimised. At its simplest, this might involve comparing the all-in costs (i.e. including social and environmental factors) of a programme to reduce unaccounted-for water (through leakage reduction); with a programme to reduce non-revenue water (through improved metering); and with a programme to increase capacity (by building a new reservoir). The process clearly requires robust selection criteria and high-quality evaluation tools; but most important is a transparent governance system that ensures decisions are made on the merits, rather than through capture by special interests.

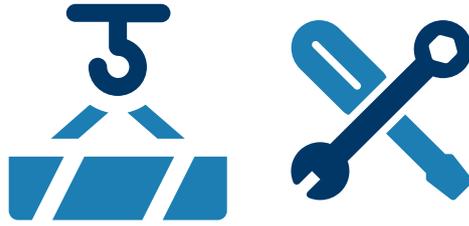
Many projects do not benefit from the upfront investment in planning and design. Perceived high costs are a common deterrent, notwithstanding the multiple return on this investment that can be achieved by avoiding design changes during the construction phase. Good planning delivers better governance, helping authorities to more effectively manage contractors, and to dynamically monitor actual costs against expectations. Within the water sector, asset utilisation might be enhanced e.g. through selecting multi-purpose infrastructure projects that deliver a combination of energy, water supply and

waste water services; support agriculture and fisheries; and provide amenity value. Other approaches include investing in maintenance Operating Expenditures (Opex) (e.g. replacing Pressure Reducing Valves) and implementing demand management (e.g. incorporating Internet of Things (IoT) with Supervisory Control and Data Acquisition systems)

RECOMMENDATION

Focus on non-financial options to close the infrastructure gap, by improving the productivity of spending. Emphasis on 'big ticket' investments in project pipeline, selection and planning tools that deliver high return on investment. Downstream focus on asset utilisation, maintenance Opex and demand management.

8



DISTINGUISH BETWEEN CAPEX AND OPEX

In developed markets, *investors are often enthusiastic about operating assets, but wary of the construction risk in greenfield projects.* Meanwhile in EMDEs funding to **build new capacity** is often much easier to source than funding for **operating expenditure**. Securing sustainable finance for both Capital Expenditures (Capex) and Opex is vital to closing the funding gap.

CONTEXT

The global infrastructure deficit masks different challenges between the developed and the developing world. In richer countries, politicians have scrapped smaller projects while pushing ahead with huge, high profile programmes that provide visibility around the electoral cycle. Related barriers include prioritising tactics over strategy as function of political pragmatism or consensus building. But infrastructure

Capex investment in developed countries is particularly afflicted by both weak public sector balance sheets following the financial crisis; and the reluctance of private investors to commit Capex to greenfield projects, which carry construction risks. However, these investors are happy to invest in assets that require capital for expansion or maintenance.

In contrast, the investment mandates for infrastructure in EMDEs heavily favours greenfield Capex over funding for maintenance or Opex. Indeed, infrastructure in the developed world is more likely to be sufficient for the population; while in EMDEs there is often simply not enough infrastructure. But the difference is also down to how infrastructure projects are selected and financed. In rich and poor countries alike, high profile Capex projects are often more ‘investable’ than incremental maintenance, or the extension of existing infrastructure. But unlike in most advanced economies where tariffs are more likely to be cost reflective, EMDEs infrastructure faces a higher risk of falling into disrepair. Poorly maintained assets eventually fall into disuse.

Without adequate cost recovery, planning or monitoring, scarce resources are often spent on building fresh capacity to replace what has failed, instead of using a fraction of these funds for maintenance and repairs. Often these decisions are deliberate and may reflect the mandates of some development finance institutions, where paying for maintenance is eschewed on the grounds that infrastructure should be ‘self-sustaining’.

The simple but key issue here is that Capex and Opex have fundamentally different attributes, and that both need access to sustainable financial flows if infrastructure assets are to be maintained and enhanced. Investment in maintenance expenditure typically has lower visibility, but unless the requirements are understood and sustainably met, the infrastructure gap will never be closed.

RECOMMENDATION

Consult with developers, operators, investors and others on the benefits of a country register of water infrastructure projects. When identifying projects in the upstream window, include existing infrastructure where there is a requirement for additional maintenance investment to ensure sustainability.

9



EXPLORE HYBRIDITY AND BLENDED FINANCE

Blended finance has grown in prominence within the *sustainable development* arena, although empirical data on its use is still limited. New, **hybrid models** of financing infrastructure that are increasingly used by the **private sector** provide some visibility into how blended finance funds and facilities can be deployed effectively.

CONTEXT

Blended finance is “the strategic use of development finance for the mobilisation of additional finance towards the SDGs in developing countries” and should play a key role in bridging the water infrastructure gap. This catalytic role requires innovation that is more commonly found in the private sector. Two examples of this are described below. They do not have a development focus, but demonstrate an alignment of interest that

should arguably be present in any well-structured blended finance facility.

In 2014, the Blackstone Group, a private equity firm, established a new water investment company. Its objective is to provide leverage finance for companies who wish to develop desalination facilities and large-scale waste water treatment for their industrial customers; and to

identify, develop, finance, construct and operate large scale independent water development projects globally. In 2015 a deal was announced to develop a facility focused on storage and residual water treatment projects for a large petrochemical company. This model blends external finance from private equity funds with companies' own balance sheets (mitigating policy risk), and combines this with their access to customers (mitigating business risk), and the know-how to build the right infrastructure (mitigating technical risk).

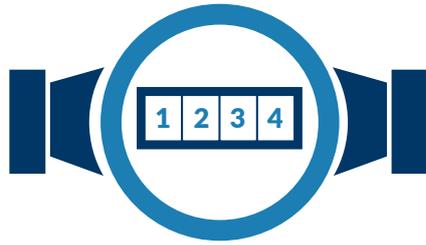
Industrial services outsourcing is a fast-growing area of water infrastructure, as regulations on waste water discharge become more stringent. Traditionally, such projects would be developed under a BOOT model, financed by a combination of the operator's balance sheet, and operating leases. However, the growth in recent years of hybrid instruments is leading to new models of financing infrastructure for outsourced industrial services. It allows the service provider to co-invest with a fund in a special purpose vehicle, replacing debt with equity. The provider earns revenues from the operation and maintenance services that it provides to the industrial client. The capital cost of provision has been shared

with the investment fund, placing less debt on the operator's balance sheet, and increasing its return on capital. As an equity investor in the Special Purpose Vehicle, the fund earns an income from its share of the service provider's profit.

RECOMMENDATION

Supplement research underway on principles and policy insights for blended finance, with analysis of the new hybrid models being developed by the private sector that mobilise capital for investment in water infrastructure at higher risk adjusted returns. Establish if and how these innovations could apply to blended development finance.

10



REVISIT TARIFFS, TAXES AND TRANSFERS (3TS)

More *funding can be unlocked* by revisiting **tariff** structures (e.g. based on user volumes or social tariffs); by hypothecated **taxes** (e.g. on property values enhanced by new infrastructure); and by financial **transfers** (e.g. to fund infrastructure that contributes to reduced global carbon emissions or to mitigate climate change).

CONTEXT

The 3Ts concept was developed by the OECD Horizontal Water Programme to help categorise taxes, tariffs and transfers (mainly development assistance) as a source of finance with different attributes to private capital or concessionary finance, which typically requires a yield and/ or repayment of principal. This useful distinction merits being reprised in the context of financing the water infrastructure gap.

Regarding tariffs, parallel streams of research are underway that explore that explore both the value and price of water. Here, it serves to highlight that if suitably applied, tariffs can serve as a highly effective tool for demand management, helping to improve the productivity of existing infrastructure (see 7, above). Technological innovations, including the IoT, mobile payments and smart metering, can

facilitate rising block tariffs and dynamic peak pricing for bulk volume users, while simultaneously enhancing access and equity through social tariffs.

Hypothecated taxes can also be used to cover infrastructure investment in a progressive way, by aligning the cost of provision with its beneficiaries. An example of this comes from a programme by Lydec, a subsidiary of Suez Environnement, in Casablanca, Morocco. Property developers are required to make a variable contribution to the costs involved in providing their properties with water supply and services, depending on the type of development (social housing, villas, hotels, industrial etc.) The contribution is made through a share of the property value at the point of sale, ranging from 0.7% for social housing through to 1.3% for high end accommodation.

In terms of financial transfers, this is to reiterate that traditional North-South transfers by development finance is increasingly being supplemented by new sources of purposed funding as identified earlier (see 5, above). This trend is likely to accelerate in coming years, particularly as the GCF ramps up to its target

disbursement of US\$ 100bn per annum by 2025.

RECOMMENDATION

Develop integrative targets that incorporate demand management, maintenance, asset utilisation, sustainable access and equity. Benchmark performance against global best-in-class approaches.

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ABBREVIATIONS

BOOT	Build, Own, Operate Transfer	IoT	Internet of Things
BOT	Build, Operate, Transfer	MDB	Multilateral Development Bank
Capex	Capital Expenditures	OBOR	One Belt, One Road
DFI	Development Finance Institution	Opex	Operating Expenditures
EMDE	Emerging Markets and Developing Economies	PPSA	Project Preparation and Structuring Activities
GCF	Green Climate Fund	SDG	Sustainable Development Goal
GIF	Global Infrastructure Facility	SWF	Sovereign Wealth Fund

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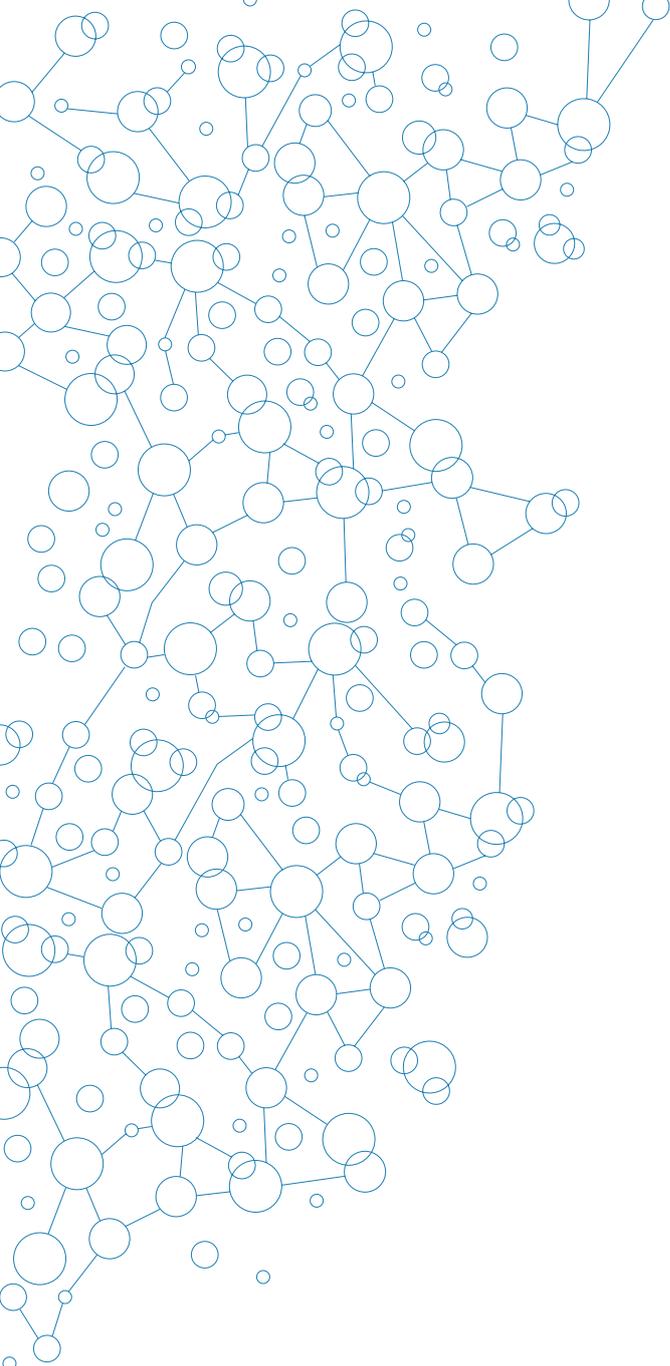
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