OECD-WWC-Netherlands Roundtable on Financing Water

Second meeting 13 September 2017, Tel Aviv

Background paper

Projects, Investors, Risks and Returns

Alex Money, University of Oxford [i]

Summary

This paper builds on the outputs from the Roundtable on Financing Water, held in Paris in April 2017. Here, I make the case for three discrete actions: i) to build a typology of water infrastructure projects; ii) to build a typology of water infrastructure investors; and iii) to adopt a broader attribution of risk and return when making the investment case for infrastructure projects.

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); **function** (e.g. water supply, waste water management, services, multi-purpose); and **operating environment** (ownership, governance and regulation).

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 activity 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 aren't 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. BOT/ BOOT etc.) may also be salient, as well as the broader governance and regulation framework.

A typology of water infrastructure investments

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).

Governments are and will remain pivotal investors in water infrastructure for the foreseeable future; particularly within emerging markets and developing economies (EMDEs). However, given the pressure that 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 helps to identify the most appropriate sources of finance. But it is just as important to identity 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 MLDB's and sovereign wealth funds. 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, 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.

A broader 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 decision-making process.

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[1] 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. That is, what is the consequence of specific infrastructure *not* being developed? 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[2] could be downscaled to a project-specific level, which could better align projects to different sources of capital (e.g. impact investors).

Recommendations

- 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 (including crowd sourcing) and scrutiny.

[1] e.g. *Infrastructure Financing Instruments and Incentives*, OECD, 2015

[2] e.g. *Securing Water, Sustaining Growth*, OECD/ GWP, 2015

- Develop a codified typology of investors using multiple classification layers. Based on this typology, develop an open-source aggregation framework through which public, private and hybrid investors can self-document their mandates and preferences. The database should be supplemented by validated information on actual investments made.

- 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.

[i] ***Author's Note:*** *This paper is excerpted from a draft report,* Financing Water Infrastructure: Ten Actions, *that is being prepared for the World Water Council's task force on financing water infrastructure. Opinions, errors or omissions are the author's own.*