

# Roundtable on Financing Water

**The Roundtable on Financing Water**

**3rd meeting, 12 November 2018, Paris**

**Session 1. Blended finance for water-related investments**

**BACKGROUND PAPER**

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## 1. Introduction

1. Water-related investments are pre requisites for sustainable development and inclusive growth. SDG 6, “ensure availability and sustainable management of water and sanitation for all” has spill over effects on food security, healthy lives, energy, sustainable cities, sustainable consumption and production, and marine and terrestrial ecosystems (UN, 2015<sup>[1]</sup>). Moreover, water management is foundational to the successful implementation of the Paris Agreement; and climate change in turn has implications for water management, reinforcing the need to address the water investment gap.

2. The economic benefits of investing in water could exceed hundreds of billions of dollars annually (Sadoff, 2015<sup>[2]</sup>). As of 2015, 2.1 billion people lack access to safely managed drinking water services and 4.5 billion people lack access to sanitation compatible with the SDG 6 objectives. Poor sanitation, water, and hygiene lead to about 675 000 premature deaths annually and estimated annual economic losses of up to 7% of GDP in some countries (World Bank, 2018<sup>[3]</sup>).

### 1.1. Characterising water-related investments

3. Water-related investments vary according to their function, scale, and asset longevity, among other features. The scope of investments considered in this paper covers those investments that contribute to the achievement of water-related Sustainable Development Goals, including, but not limited to SDG 6. This entails investments that promote access to safely managed water supply and sanitation as well as achieving an acceptable level of water-related risks (risk of “too much”, “too little” and “too polluted” water).

4. Box 1.1 provides a (non-exhaustive) summary of the sub-sectors that contribute to water-related SDGs, differentiated by their function and their beneficiaries. It also provides a brief description of the each of the sub-sectors.

### Box 1.1. Water-related investments: description of sub-sectors

- Water resources management: Conservation and rehabilitation of inland surface waters (rivers, lakes etc.), ground water and coastal waters; prevention of water contamination.
- Bulk water supply: The production of water to be distributed to various end-users, including drinking water supply. Bulk water supply may be produced from the abstraction of surface or groundwater or through non-conventional sources, such as desalination or wastewater reuse.
- Storage and conveyance: The infrastructure required to store and transport bulk water supply to various end-users. This includes reservoirs, pipelines, channels and other forms of water supply distribution.
- Water supply services: The production and distribution of high quality water at standards required for consumption as drinking.
- Sanitation, wastewater collection and treatment: Sanitation services consist of the provision of facilities and services for the safe disposal of human urine and faeces. Wastewater collection and treatment refers to the safe collection and treatment of sewage and wastewater. The treatment can be executed on several different levels: preliminary, primary, secondary and tertiary. May include waste to energy activities.
- Irrigation: The production and distribution of water intended for agricultural use.
- Flood protection (riverine, coastal): Interventions intended to manage the risk of flooding caused by coastal and river flooding. Flood is defined as the overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas that are not normally submerged.
- Urban drainage: Interventions to manage runoff from storm water.
- Multipurpose infrastructure: encompasses all constructed water systems, including dams, dykes, reservoirs, hydropower and associated irrigation canals and water supply networks, which may be used for more than one purpose for economic, social and environmental activities.

Sources: (WHO, 2017<sup>[4]</sup>); (OECD, 2013<sup>[5]</sup>); (Sperling, 2007<sup>[6]</sup>); (OECD, 2015<sup>[7]</sup>); (OECD, 2017<sup>[8]</sup>).

5. Table 1.1 provides an overview of the types of water-related investments and highlights that the type of beneficiaries they served. This is relevant given that different users typically vary substantially in terms of whether and how much they contribute to cost recovery. However, direct beneficiaries are not necessarily those who contribute to revenue generation. In a development context, governments, impact investors, donors or philanthropies, may be the initial source of the revenue stream that allows the private sector to be mobilised. The engagement of these actors in these various types of investment will be contingent by their mandate and priorities.

Table 1.1. Types of water-related investments: Functions and beneficiaries

Beneficiaries	Water resources management	Bulk water supply	Storage & conveyance	Water supply services	Sanitation, wastewater collection & treatment	Irrigation	Flood protection	Urban drainage	Multi-purpose infrastructure
Households	✓	✓	✓	✓	✓		✓	✓	✓
Industry	✓	✓	✓	✓	✓		✓		✓
Agriculture	✓	✓	✓			✓	✓		✓
Municipalities	✓	✓	✓	✓	✓		✓	✓	✓
Energy producers	✓								✓
Tourism	✓	✓		✓	✓		✓		

6. Historically, public finance has played a central role in financing water investments and is likely to continue to do so well into the future. Yet, in light of the constraints on public finance and substantial investment needs, leveraging contributions from other sources of finance (in particular, domestic commercial finance) with different risk appetites can help to scale up investment. Many countries have used public private partnerships for infrastructure investment to attract additional private finance and benefit from the expertise of the private sector in constructing and operating public facilities.

7. The extent to which various water-related investments will be suitable for blended finance depends on the extent to which (1) the investment supports development objectives, and (2) whether the risk-return profile of the investment can be designed to attract commercial finance. Table 1.2 summarises the main features of investments that influence their attractiveness to commercial finance and suitability for blended finance<sup>1</sup>.

<sup>1</sup> The features in the Table 1.2 are not all independent variables and several interact with and may be influenced by other features. For example, the project attribute “greenfield vs. brownfield” influences the technical risk of a project.

Table 1.2. Attributes of investments that influence their attractiveness to commercial finance

Feature	Description
<b>Risk</b>	
Macroeconomic and business risks	Arise from the possibility that the industry or economic environment is subject to variation. Macroeconomic risks include variables such as inflation, real interest rates and exchange rate fluctuations. Business risks include an assets' exposure to the business cycle, namely, shifts in demand is a principle business risk of the asset.
Regulatory and political risks	Arise from governmental actions, including changes in policies or regulations that adversely impact infrastructure investments. Such actions may be broad in nature (link convertibility risk) or linked to specific sectors or PPP contracts.
Technical risks	Determined by the skill of the operators, managers and related features of the project, its construction and technology.  In the case of water infrastructure, this is also influenced by: <ul style="list-style-type: none"> <li>• The type of infrastructure used to deliver services (e.g. nature-based solutions<sup>2</sup>, conventional "grey" infrastructure and combinations of both).</li> <li>• The track record of the technology used (more innovative projects are more technically risky).</li> <li>• Hydrological risk, which is the extent to which the operation of the assets relies on reliable access to water resources</li> </ul>
Environmental/social risk	The extent to which the project may be challenged due to unacceptable environmental or social impact.
<b>Return</b>	
Cash-flow generation	Extent to which the project generates predictable cash-flows, which can cover financial costs and provide a return for investors.  This may be influenced by whether the good or service provided is a public vs. private good and the way the project is structured to generate cash flows.
Developmental return	Contribution to development outcomes.
<b>Project attributes</b>	
Greenfield vs. brownfield	Type of project that either is complete new (greenfield) or the upgrading, expansion or refinancing of an existing facility (brownfield), which impacts both risks as well as structure of cash flows.

<sup>2</sup> Nature-based solutions involve the use of natural or semi-natural systems that utilise nature's ecosystem services in the management of water resources and associated risks (too little, too much and too polluted water, and the risk to the resilience of ecosystems).

Scalability	Potential to replicate the same project or financial structure.
Size	Physical scale of the asset/ capacity to reap economies of scale or attract large pools of capital
Transaction costs	Degree of standardisation of the operation and need to tailor financial and contractual arrangements
Tenor/ Longevity	Operational lifetime of assets/ tenor of financing required

Source: Authors' elaboration, drawing on (OECD, 2015<sup>[9]</sup>).

8. In addition to the attributes in Table 1.2, the specific investment opportunities within each sub-sector can be further categorised by other features<sup>3</sup>, such as whether the infrastructure is centralised or distributed, serving urban vs. rural customers, as so on, which will influence the risk-adjusted return investments provide and therefore, their attractiveness to commercial finance.

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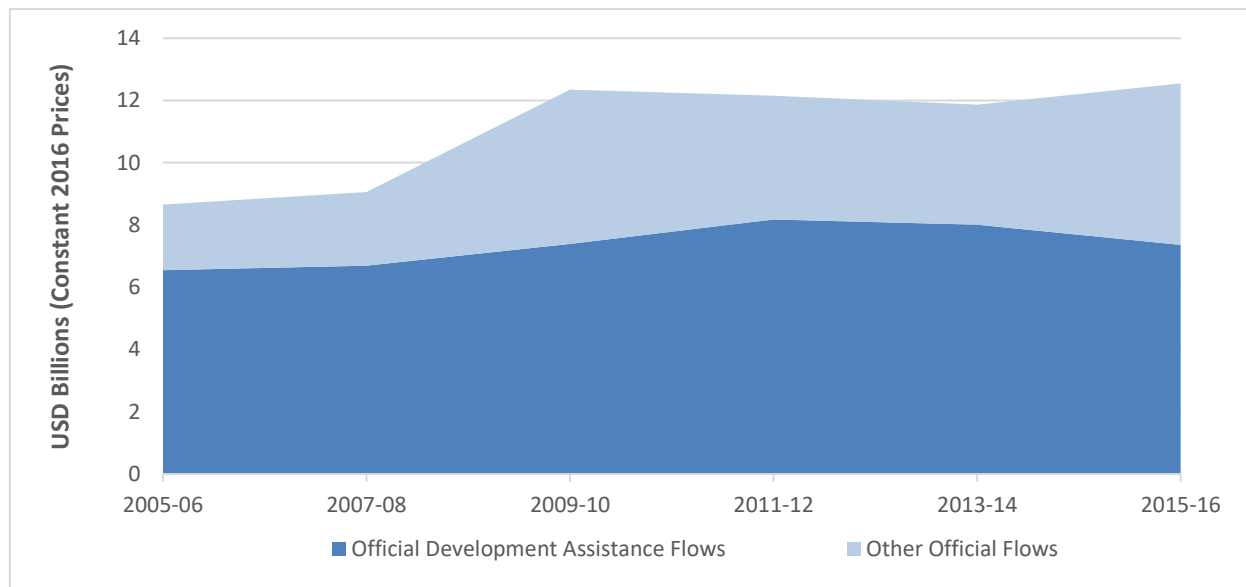
<sup>3</sup> Further discussion on characteristics to classify water infrastructure projects can be found in: Money (2018) *A Typology of Water Infrastructure Projects*, Working Document for the Task Force on Financing Water Infrastructure, World Water Council.

## 2. Recent trends related to finance in water

### 2.1. Official aid in the water and sanitation sector

9. The water sector has traditionally been financed by the public sector, with concessional donor finance playing an important role in developing countries (World Bank Group, 2012<sub>[10]</sub>). As shown in Figure 2.1 total official finance flows to water and sanitation<sup>4</sup> have increased 3.5 % year on year since 2005-06 reaching USD 12.5 billion on average in 2015-16. This includes both Official Development Assistance (ODA), i.e. flows provided by official agencies that are administered with the main purpose of economic development, the welfare of the developing country and are concessional in character, as well as other official flows (OOF), i.e. flows that do not meet ODA criteria, for instance in respect to concessionality (OECD, 2018<sub>[11]</sub>).

**Figure 2.1. Trends in official aid to water and sanitation (2-year average commitments)**



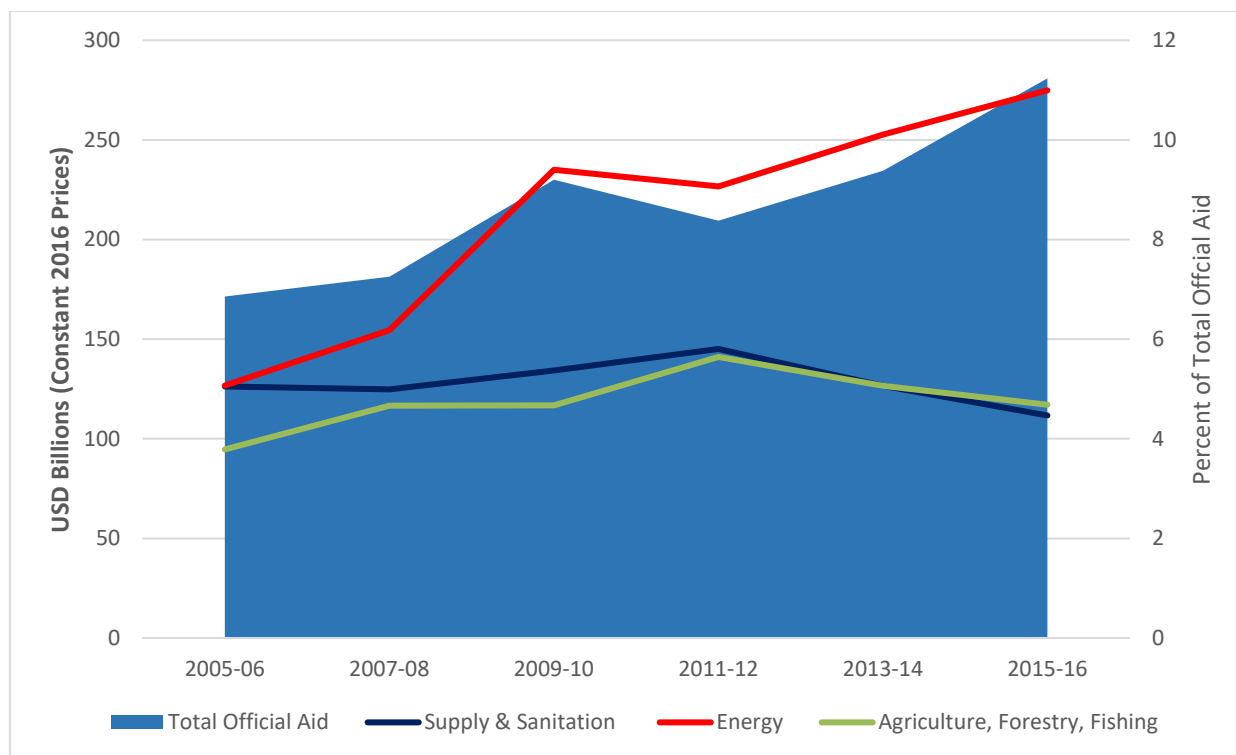
Source: OECD CRS Database (<https://stats.oecd.org/index.aspx?DataSetCode=CRS1>)

10. While total official aid, i.e. official development assistance (ODA), has increased to the water and sanitation sector in absolute terms, Figure 2.2 shows a trend that aid for water as a percentage of all aid flows has declined from 5% in 2005-06 to 4.5% in 2015-16. In the same time period, the share of aid to the energy sector rose from 5% to 11%. It is also noteworthy that agriculture forestry and fishing sector received less aid than water and sanitation at 3.8% in 2005-06 but received more in 2015-16 at 4.7%. The importance of water investment should not be understated, it may have positive spill over effects for

<sup>4</sup> The water and sanitation sector as reported in the CRS database includes 11 subsectors ranging from water sector policy to large and basic water supply and sanitation Table A1 shows a list of all subsectors.

agriculture, such as irrigation projects. Conversely, infrastructure investment may also positively impact water projects directly or through spill over effects.

**Figure 2.2. Sector wise trend in official aid (2-year average commitments).**



Source: OECD CRS Database (<https://stats.oecd.org/index.aspx?DataSetCode=CRS1>)

## 2.2. Private finance mobilised in the water and sanitation sector

11. In addition, private finance flows to the water sector have generally been limited to date. For instance, in developed countries the private sector typically accounts for 7% of spending on water and sanitation, a figure that drops to below 0.5% in Sub Saharan Africa (WHO/UN-Water, 2012<sub>[12]</sub>). This is due to several sectoral constraints such as revenue uncertainty, lack of appropriate regulation and a general misunderstanding between the private sector's expectations of risk adjusted returns and what can be achieved from investments by the private sector (OECD, 2017<sub>[13]</sub>).

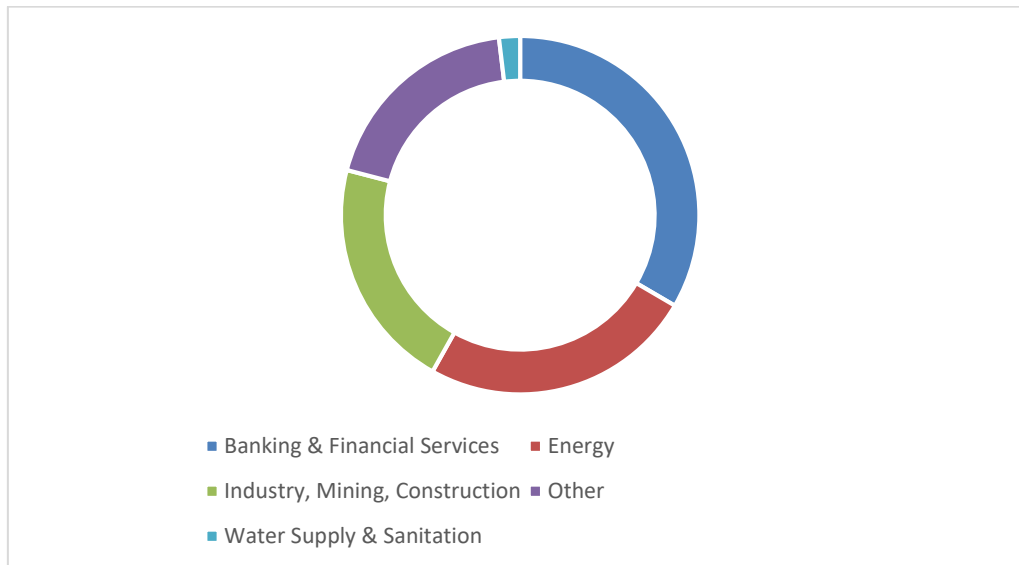
12. In order to better understand the mobilisation effect of blended finance instruments, the OECD is measuring the amounts mobilised from the private sector by official development finance. The latest survey covers the mobilisation of guarantees, syndicated loans, shares in collective investment vehicles, direct investment in companies, as well as credit lines (OECD, 2017<sub>[14]</sub>).

13. From 2012 to 2015, USD 1.54 billion (USD 375 million on average per year) of private finance is reported as mobilised in the water and sanitation sector (Figure 2.3), out of the total of USD 81.1 billion mobilised for all sectors. This 1.9% share of private finance mobilised in the water and sanitation sector compared to the overall sample underlines the aforementioned challenges to mobilise private sector investment in the water sector. Sectors, which dominate in amounts mobilised from the private sector, include banking and



financial services (33% of total private finance mobilised), followed by energy generation and supply (25%) and industry (14%).

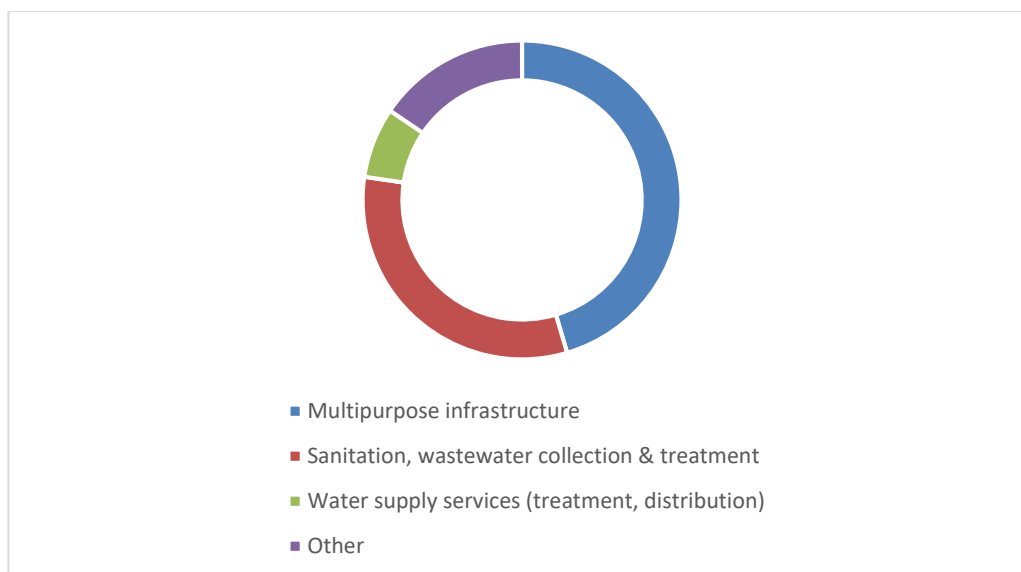
**Figure 2.3. Private finance mobilised by official development finance interventions by sector, 2012-15**



Source: (OECD, 2017<sup>[14]</sup>)

14. In terms of sub-sectors (Figure 2.4), multipurpose infrastructure is the largest sector in which private finance is mobilised by official development finance (45%). This is followed by sanitation, wastewater collection & treatment (32%) and water supply services (7%). Other subsectors account for 15%.

**Figure 2.4. Private finance mobilised by official development finance interventions by water and sanitation sub sectors, 2012-15**

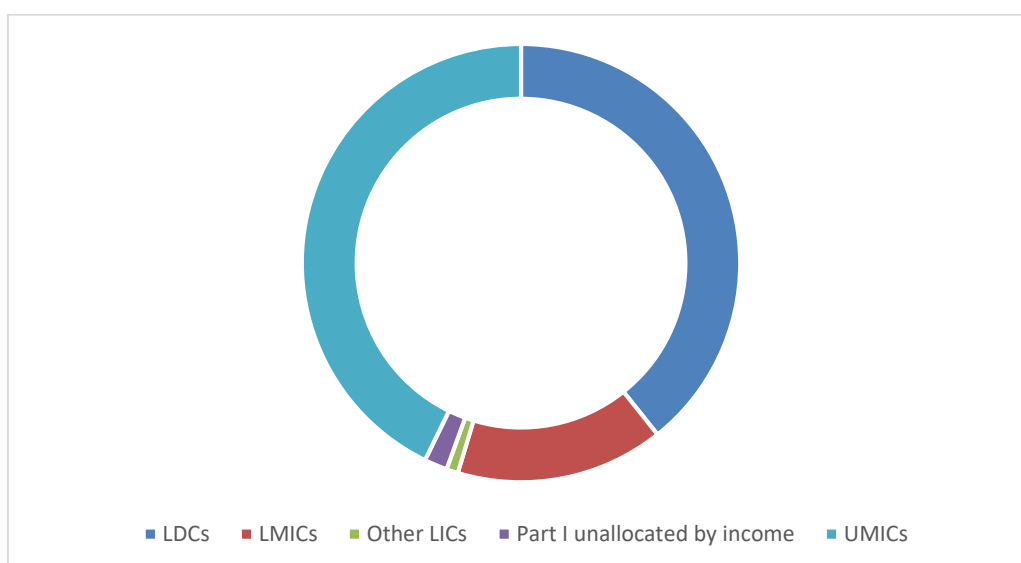


*Note:* The subsectors as used in the OECD CRS reporting system have been mapped to correspond to the authors' classification in this paper, see Annex 1.

*Source:* (OECD, 2017<sup>[14]</sup>)

15. According to the survey (Figure 2.5), private finance in the water sector is mobilised predominantly in upper middle-income countries (UMICs) and least developed countries (LDCs) with 43% and 39% of the total amount mobilised, respectively. Lower middle-income countries (LMICs), other low-income countries (LICs) and unallocated by income account for the remainder.

**Figure 2.5. Private finance mobilised by official development finance interventions in water and sanitation by recipient income group, 2012-15**

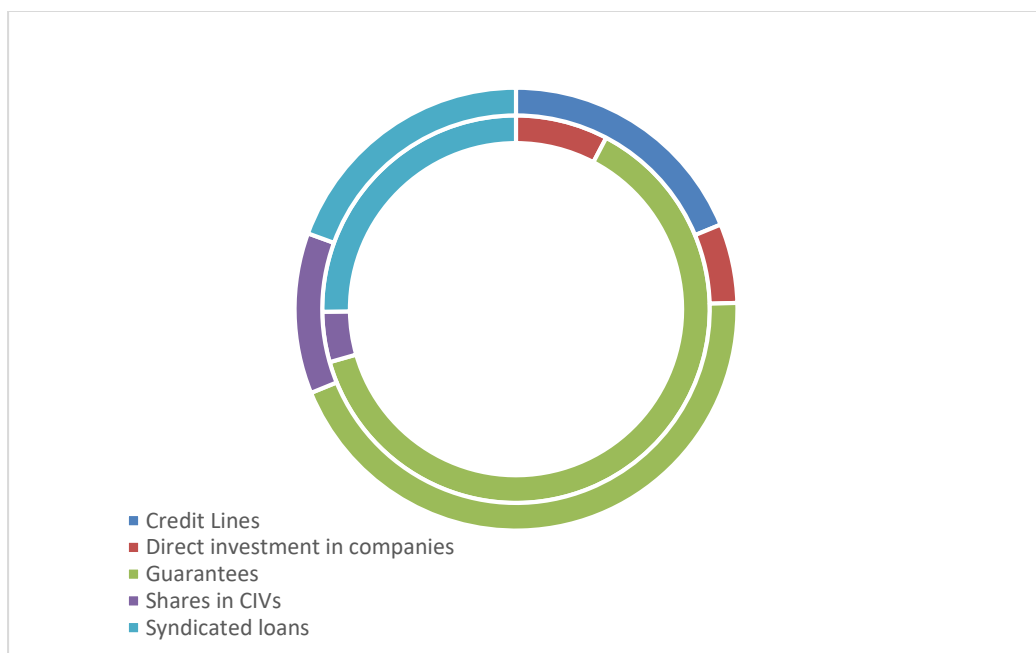


*Source:* (OECD, 2017<sup>[14]</sup>)

16. With respect to the blended finance instruments (Figure 2.6) used to mobilise private finance, guarantees account for more than 60% of private finance mobilised, followed by syndicated loans mobilising 25% of private finance. A minor share are mobilised via direct investments and shares in CIVs, accounting for 8% and 4% of private finance mobilised. Compared to the overall reported private finance mobilised, guarantees are overrepresented in the water and sanitation sector. Guarantees account for only 44% of private finance mobilised in the full sample. On the other hand, shares in CIVs play a less important role in the water sector (4% in water as compared to 12% in all sectors). Credit lines are not reported to mobilise private finance in the water sector. This is in line with the characteristics of the water sector, particularly, in terms of large scale projects where guarantees have been shown to be effective in the utility sectors. Equity investments through CIVs are likely to be limited due to the significant investments needed for water and financial support most apparent in the debt components of financing.

**Figure 2.6. Private finance mobilised by official development finance interventions in total, and water and sanitation, by instrument in 2012-15**

The outer doughnut represents the share of instruments across all sectors, whilst the inner represents that of water and sanitation.

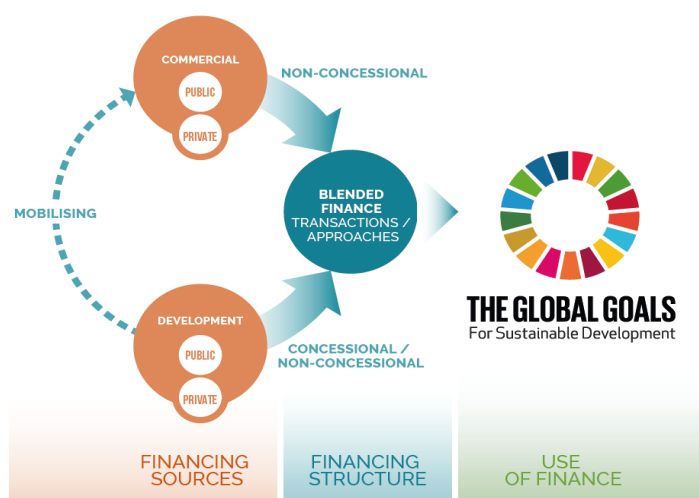


Source: (OECD, 2017<sup>[14]</sup>)

### 3. The potential for scaling up blended finance for water

17. Blended finance (Figure 3.1) offers a promising approach to harnessing private sector resources for water investments. Defined as the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries (OECD, 2018<sup>[15]</sup>), blended finance aims at primarily crowding-in additional commercial finance that is not currently invested for development outcomes. While development finance, including official aid and philanthropic funds, will not be enough to achieve the SDGs, it has the power to catalyse additional private sources of financing.

**Figure 3.1. What is blended Finance**



Source: (OECD, 2018<sup>[15]</sup>)

18. If designed effectively, blended finance can support maximising development impact by crowding-in additional commercial finance towards sustainable development projects. The OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals provide a guiding framework to ensure that blended finance is deployed in the most effective way (see Box 3.1.).

### Box 3.1. OECD DAC blended finance principles for unlocking commercial finance for the Sustainable Development Goals

19. The 2015 Addis Ababa Action Agenda has outlined the clear need to work with and through the private sector in financing the SDGs. At this stage, 17 OECD Development Assistance Committee (DAC) members are engaging in blended finance (OECD, 2018<sup>[15]</sup>). In order to provide a framework on how ongoing and future efforts on blended finance can be designed most effectively in respect to development outcomes, the OECD DAC at the High Level Meeting in October 2017 endorsed the OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals. Under the Canadian leadership, the G7 have committed to “work to implement the OECD-DAC blended finance principles including promoting greater transparency and accountability of blended finance operations.” (G7, 2018<sup>[16]</sup>)

20. The principles aim at supporting development finance providers in (1) making sure that blended finance is driven by the aim to maximise development outcomes; (2) mobilising additional commercial finance into developmental projects; (3) supporting local development needs and priorities and contributing to local financial market development; (4) engaging in sustainable and effective partnerships with commercial stakeholders; and (5) creating accountable impact (OECD, 2018<sup>[7]</sup>).

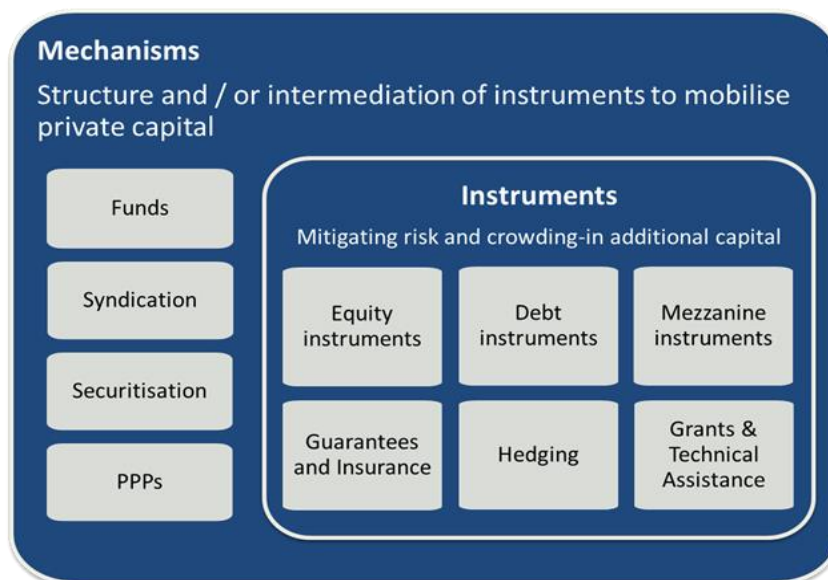


Source: (OECD, 2018<sup>[15]</sup>)

### 3.1. Blended Finance Instruments

21. Blended finance instruments (Figure 3.2) can help to adjust the overall risk adjusted return of water investments. Generally, blended finance approaches can be categorised according to mechanisms and instruments. Whereby the mechanisms refer for instance to investment funds (also referred to collective investment vehicles (CIVs), or syndicated loans, the latter refers to stand-alone instruments, which include equity, debt or mezzanine investments directly invested in companies, projects or governments (OECD, 2018<sup>[15]</sup>).

Figure 3.2. Blended finance instruments and mechanisms



Source: (OECD, 2018<sup>[15]</sup>)

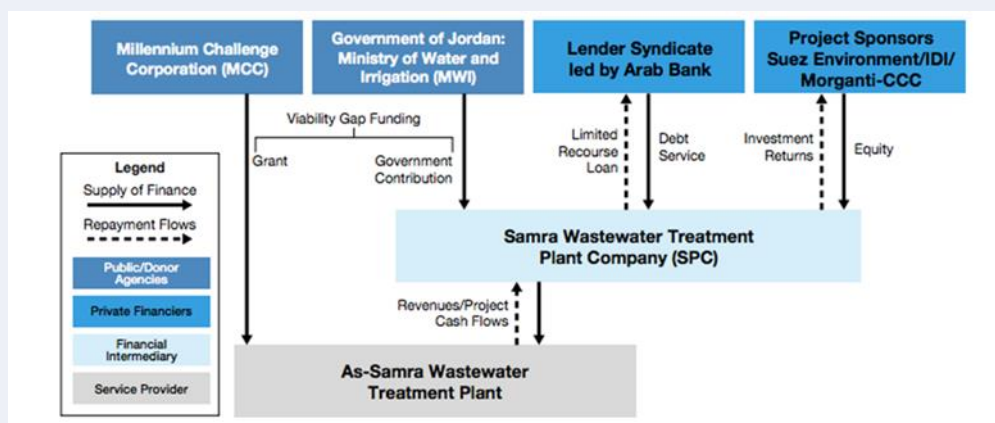
22. Instruments also include credit enhancement in the form of **insurance and guarantees**. Both of these mechanisms improve the risk assessment by transferring the risk of the project from investing counterparties to the guarantor. An example of this is the bond issued by the Mexican municipality of Tlalnepantla de Baz for a local water conservation project. Supported by a partial credit guarantee by the IFC, the bond was able to get a AAA rating, higher than that of the municipality itself, making it attractive to private financiers (World Bank Group, 2016<sup>[17]</sup>).

23. Water-related projects often have a viability gap; this could be overcome via direct monetary contributions without expectation of repayment and advice or assistance, i.e. **grants and technical assistance** respectively, as applied in the As-Samra project (Box 3.2). This process strengthens project capacity and can help mobilise commercial investment (World Bank Group, 2016<sup>[17]</sup>).

### Box 3.2. Case study As-Samra

24. The expansion of the As-Samra Wastewater Treatment Plant in Jordan shows how blended finance can crowd-in private investment. Initially designed in 2003, the water treatment plant was overburdened and required capacity expansion. The Millennium Challenge Corporation (MCC), a US aid agency, committed to assist the ministry of Water and Irrigation (MWI) in Jordan in the form of transaction advisory and viability gap funding of a USD 93 million grant. This was crucial in securing the expansion through a build-operate-transfer (BOT) contract, a form of public-private partnership (PPP). The BOT contract was signed between MWI and Samra Wastewater Treatment Plant Company Limited (SPC); private investors include Suez, Morganti and Infilco Degrémont. Apart from the grant from the MCC, the diverse blend of financing (Figure 3.3) included a USD 20 million grant from the Government of Jordan and USD 110 million in private financing arranged by the Arab Bank through a loan syndication process. This project increased the capacity of water that could be used for agriculture, thus freeing up freshwater for high value use in municipalities (World Bank Group, 2016[12]).

Figure 3.3. As-Samra blended finance structure



Source: (World Bank Group, 2016[17])

25. **Investment funds** or collective investment vehicles (CIVs) constitute mechanisms to mobilise commercial finance. Funds pool resources to invest in specific sectors or regions using different type of instruments, including equity, debt or guarantees. For instance, the USD 234 million Philippines revolving water fund (PRWF) with concessional seed financing from the Japan Bank for International Cooperation (JBIC). The PWRF blends Official Development Assistance and domestic public funds with commercial financing to lower borrowing rates, and to market water and sanitation projects to private finance institutions. (The World Bank Group, 2016[18])

26. **Syndicated loans** are an efficient way to reduce transaction costs, while harnessing the due diligence capacity of the MDBs. With the public sector playing the role of lead arranger, commercial investors provide the financing for various risk diversified tranches of the loan. For instance, the Asian Development Bank (ADB) played the role of lead

arranger for the Chinese Urban-Rural Integration Water Distribution Project, its USD 100 million investment and due diligence allowed a larger and more diverse group of international commercial banks to participate in the project (Asian Development Bank, 2015<sub>[19]</sub>).

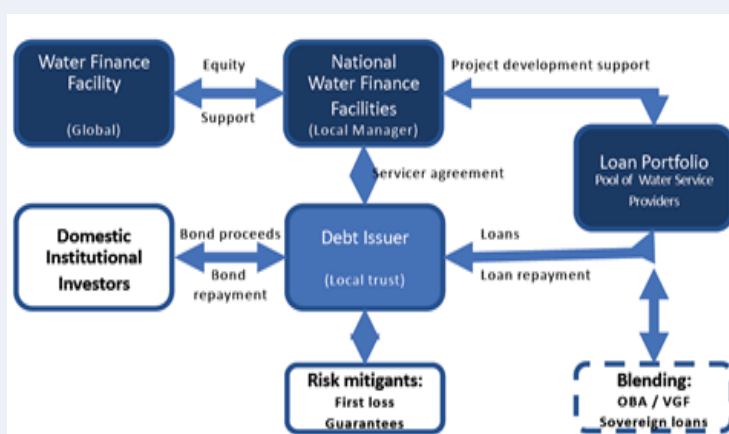
27. Finally, the private and the public sector can officially enter a contract using various blending instruments to enter a **Public Private Partnership (PPP)** towards a developmental goal. This is an institutionalised mix of blended procurement and finance, with specific contractually decided specificities. For example, the recent Kigali Bulk Water Supply Project in Rwanda. The project requires total capital investment of approximately USD 61 million, with EAIF and African Development Bank (AfDB) each provided approximately USD 19 million of senior debt with the private party, Metito, bringing equity (PFI, 2018<sub>[20]</sub>).

### Box 3.3. Case study – Water Financing Facility

The Water Financing Facility aims at mobilising domestic capital from institutional investors in developing countries to finance water utilities<sup>5</sup>. The project is currently under development and ultimately aims at operating in up to eight countries, given its foreseen replicable characteristics.

The blended structure (Figure 3.4) aims at developing a loan portfolio of water service provider debt which is subsequently transferred into a special purpose vehicle. The loan portfolio is backed by official development finance support. The trustee will issue bonds that are backed by guarantees, possibly from the Swedish development aid agency Sida, USAID or Guarantor. The project targets EUR 1 billion in local capital mobilisation, thereby, mitigating FX risk as revenues in the water utilities are usually generated in local currency.

Figure 3.4. Water Financing Facility blended finance structure



Source: Undisclosed project documentation

<sup>5</sup> Please see <https://waterfinancefacility.com/>



## 4. Next step for the OECD project on blended finance for water-related investments

28. Building on the feedback received during Phase I of the OECD project, in-depth case studies on three selected sub-sectors will be developed. The selection of sub-sectors was driven by the feedback received during Phase I, and the aim to investigate sub-sectors with varying degrees of demonstrated experience attracting blended financing. The selected sub-sectors include:

- **Large-scale urban water utilities:** Large-scale utilities responsible for the production and distribution of high quality water at standards required for consumption as drinking (and may include the delivery of sanitation services, as many large-scale utilities provide both water and sewerage services). Case examples may include both financing greenfield and re-financing of brownfield investments.
- **Small-scale off-grid sanitation, wastewater collection and treatment:** Small-scale solutions to deliver services for the safe disposal of human urine and faeces. This may also include small-scale wastewater collection and treatment, including waste-to-energy solutions related to treatment.
- **Multipurpose infrastructure and landscape-based approaches:** Investments that deliver multiple water-related benefits via multi-purpose infrastructure (both grey and nature-based or combinations thereof) and landscape-based approaches, which combine investments within a given spatial area (e.g. catchment or basin).

29. The sub-sectors are framed broad enough to allow the use of a diversity of examples. While the goal is not to document all possible examples, investigating a broad range of innovative examples should enable an accurate insight into the status quo and potential of innovative financing mechanisms in the respective area.

### Questions for discussion

- What types of blended finance instruments and mechanisms are best adapted to the specific characteristics of different types of water investments (e.g. large-scale water utilities, small-scale sanitation, multi-purpose infrastructure) and contexts (various degrees of economic development, domestic capital markets, intensity and frequency of climate-related risks)?
- What types of innovative contractual arrangements can be used to allocate risks among partners? What are the opportunities and obstacles for standardisation?
- How can an adequate risk-adjusted return for investment as well as development outcomes be assured?
- How can greater cooperation among finance providers be improved in order to overcome potential barriers to the broader uptake of blended finance?

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