Financing a water secure future
The importance of water security to broader economic development and resilience is increasingly internationally recognised, as reflected by the annual G20 Dialogue on Water as well as the preparations for the 2023 UN Conference on Water; the first of its kind in nearly 50 years. Investments that contribute to water security span a range of essential infrastructure systems to deliver clean drinking water, reliable sanitation and to manage water resources and water risks. They deliver substantial benefits across multiple policy agendas, notably food and energy security, urban development, public health and education. The COVID-19 pandemic has also starkly demonstrated the importance of ensuring access to safe water, sanitation and hygiene as a critical element of reducing the transmission of infectious diseases.

The economic case for investments in water security is robust and with climate change and other drivers exacerbating pressure on water systems, the value of investments in resilience is further heightened. Economic losses related to water insecurity are estimated to include USD 260 billion per year from inadequate water supply and sanitation, USD 120 billion per year from urban property flood damages, and USD 94 billion per year of water insecurity to irrigators. At the same time, the global costs of achieving SDG 6 on water and sanitation exceed USD 1 trillion per year, or 1.21% of global GDP. Yet, financing flows have long remained well below identified levels of need. The world is not on track to meet the SDG 6 and lack of financing is well-recognised as a major impediment.

The analysis presented in this report confirms that addressing the financing challenge requires more than calls for increased funding. It requires accelerated and concerted action on multiple fronts to: (1) make the best use of existing assets and finance, (2) strengthen the enabling environment for investment, (3) pursue strategic investment planning to ensure resilient investments in the context of uncertain future climatic conditions, and (4) mobilise additional sources finance from various public and private sources. Policy makers and financiers can seize new opportunities that arise from growing interest in sustainable finance, such as the development of taxonomies for sustainable activities, green and blue bonds, as well as increased policy impetus and investor appetite to align finance with environmental ambitions.

These findings draw on analytical work and discussions at the Roundtable on Financing Water; the only dedicated forum on financing water at the international level. Since its establishment in 2017, the Roundtable has engaged several hundred policy makers and practitioners to mobilise the full range of sources of finance to contribute to a water secure future. The release of this report provides a strong foundation for new initiatives such as the OECD Global Observatory on Financing Water Supply, Sanitation and Water Security, which will provide a dedicated knowledge hub to share good practices and support peer-to-peer learning.

We hope you will find this report inspiring. We encourage you and all stakeholders to join us to advance this agenda to scale up financing for water security and sustainable growth.

Mathias Cormann
Secretary-General, OECD
III. Mobilising additional sources of funding and finance

Additional sources of finance and funding are vital to help bridge and close the financing gap for water-related investments. There are a range of options to leverage additional funding and financing. For example, governments can employ a variety of economic and financial policy instruments to influence the behaviour of individuals, communities and organisations to help achieve water policy goals and to generate revenues for water management and the delivery of water supply and sanitation and water management. In addition, once the groundwork has been laid to strengthen the enabling environment for investment, a broader range of sources of capital can also be mobilised.

**Potential sources of finance for water security:**

Commercial finance can play an important role to bridge the financing gap in the water sector. To the present, however, commercial investments remain very limited:

*It covers 6%* of total expenditure on water supply and sanitation\(^\text{16}\) and only a very minor share of all watershed investments in Europe.

*Only 1.6%* of all institutional investment holdings were allocated to water supply infrastructure\(^\text{17}\).

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16. OECD, 2020
17. OECD, 2020
1. GENERATING REVENUE STREAMS

Revenue streams are the main driver of financial sustainability and fulfil several functions. They:

- cover the costs of service provision,
- can be a source of capital needed to maintain or enhance asset quality, and
- provide a means to leverage repayable finance.

From the investors’ point of view, a main criterion is the creditworthiness of the borrower, which depends on the ability to recover costs and to service their debt obligations. It is therefore essential to create and clearly define predictable revenue flows from water-related investments and to invest in the enhancement of borrowers’ creditworthiness.

EXAMPLES:

- **The Beneficiary Pays Principle in practice: Water Funds in Mexico**
  The brewery Heineken provides grant funding to the Monterrey Metropolitan Water Fund (FAMM) in Mexico, which finances investments in nature-based solutions for water resources management, and thus improves water security for the brewery and its operations, as well as to the broader community.

- **The Polluter Pays Principle in practice: Environmental Offset markets**
  The US private investment firm Ecosystem Investment Partners (EIP) manages investments in large-scale ecosystem restoration and conservation. With committed capital from institutional investors, such as pension funds, they launch projects for flood protection, improving water system operations, etc., which generate credits that can be sold on the environmental offset market, thus generating a revenue stream.

2. REDUCING AND SHARING INVESTMENT RISKS

Commercial investors are primarily concerned about the risk-return profile of an investment and are cautious about uncertainty regarding any of the risks related to an investment opportunity. Investors are confronted with a range of risks, including business risks (e.g. credit risks), macroeconomic risks (e.g. currency risk), regulatory and political risks (e.g. changing regulations or political unrest) and commercial and technical risks (e.g. performance risks for innovative approaches such as NbS). Public funds can be used strategically to reduce these risks and hence improve the risk-return profile of water-related projects. These strategic financing approaches include:

- Credit enhancement, including public guarantees
- Pooling finance
- Political risk insurance
- Increasing transparency (benchmarking, credit rating)
3. MATCHING SUPPLY AND DEMAND FOR FINANCE

One critical limiting factor for commercial investments is a lack of well-prepared, bankable projects and a mismatch between the demand (e.g. water agencies, utilities or other service providers) and supply (e.g. financing institutions) of finance.

A recent analysis of the role of intermediaries to facilitate finance for water-related investments documented the wide range of organisations playing various roles at the interface between demand and supply of finance (Lardoux de Pazzis and Muret, 2021[23]). It identified gaps, redundancies and misalignments of their activities with functions needed and calls for a shift from the current opportunistic approach to a more strategic approach in the design and activities of intermediaries, supported by governments and financial institutions.

4. SEIZING OPPORTUNITIES FROM GROWING INTEREST TO ALIGN FINANCE WITH ENVIRONMENTAL OBJECTIVES

Sustainable finance is gaining increasing attention from investors, financial institutions and governments and there is an opportunity for water investments to attract financing seeking environmental and social impact. These objectives can include climate goals, poverty reduction, women’s empowerment or environmental justice.

In order to tap into the growing demand from investors for sustainable projects, water investments should make the range of benefits visible, which they deliver for climate action, biodiversity and the environment more broadly. However, at present, there is no common understanding or harmonised definition of what is considered a sustainable investment, which creates a risk of “green-washing” or “blue-washing”. While standards or metrics exist, the multiplicity and heterogeneity of definitions are major barriers to scaling up sustainable investment.

Across the globe, sustainable finance taxonomies are being developed to address these challenges and to define clear metrics and thresholds for what is considered a sustainable project or investment. One example is the EU Sustainable Finance Taxonomy, which entered into force in 2020. It specifically accounts for water as one of its six environmental objectives of the ‘Sustainable use of water and marine resources’ and indirectly within the other five objectives. By specifically including water, the EU taxonomy might raise the sector’s visibility for financial market actors and could raise investors’ awareness and interest, while at the same time increasing reporting requirements and potential complexity and costs of financing processes.
Impacts of climate change manifest through the water cycle and have significant effects on water security, such as increasing risks of floods and droughts or heavy rainfall events. Therefore, investments in water security can contribute substantially to climate action, such as adaptation, and can enhance the resilience of systems and communities.

Emphasising the linkages between investments in water security and climate action can help align and scale up financing flows for both water security and climate action and help accelerate the transition to a carbon neutral, water secure and resilient future.

Strategically linking water-related investments with climate action can help achieve both climate goals and water security and unlock financing flows. Strengthening climate considerations in investments for water security can:

1. Open opportunities to attract new types of financiers and investors, such as finance from climate-conscious commercial investors;

2. Generate new revenue streams, for example through blue carbon credit markets, and attract private capital to manage climate and water risks; and

3. Offer financing and funding through the increasing strategic focus on climate action by governments and development banks, such as funding supporting National Adaptation Plans or from dedicated climate funds.

**Examples of Investment Opportunities for Water Security Contributing to Climate Action:**

**Adaptation through investments in water security:**

- Investments in sustainable irrigation and water resource management play a pivotal role for adaptation strategies in the agricultural sector, and can increase climate resilience of rural communities. Expanding small-scale irrigation, for example, can benefit between 113 and 369 million rural people. (Xie et al., 2014[24])

- Flood protection that factors in climate-induced increasing intensity of floods over the next decades, can strengthen adaptation and resilience to future risks. Nature-based solutions for flood protection and water security are particularly apt to enhance resilience thanks to their flexible and adaptive nature.

**The mitigation potential of investments in water security:**

- Water-related activities account for 10% of global greenhouse gas emissions. In particular, water and wastewater utilities contribute to 30 to 40% of a municipality’s energy use (WaCClIm, 2020[25]). Investments in water efficiency improvement of water supply and sanitation services, for example, can hence reduce the sector’s energy use and thus limit carbon emissions.

- Wetland and peatlands can store twice as much carbon as the planet’s forests (UNEP, 2019[21]). Investing in wetland conservation or restoration hence contributes to natural carbon capturing.

- Many investments for water security deliver multiple climate and environmental benefits at the same time. Wetland restoration, for example, helps store carbon (mitigation), provides flood protection (adaptation) and can enhance and protect natural habitats and biodiversity.

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18. The topic of ‘Financing Water Security and Climate Action’ is only marginally discussed in the OECD publication Financing a Water Secure Future. The presented key messages are based on the outcomes and background documents of the dedicated Roundtable meeting on Financing Water with thematic focus on Climate Action.
5. FINANCING VEHICLES AND APPROACHES TO CREATE OPPORTUNITIES FOR SCALING UP INVESTMENT

Private investors and particularly institutional investors are increasingly looking for opportunities to grow their sustainable finance portfolios but often lack adequate financial products to channel their investments. Appropriate vehicles for water-related investments would account for and help overcome the specificities of the water sector, such as the need for long tenors, small ticket sizes, limited creditworthiness and the lack of clearly defined revenue streams. Examples include:

**Use-of proceeds bonds**

Bond finance can facilitate the flow of capital for water-related investments with clearly defined revenue streams. Bonds with long tenors, typical of the water sector, can attract institutional investors such as pension funds. Investors increasingly show interest in use-of-proceed bonds, whose proceeds are earmarked for particular projects and purposes and which need to meet specified standards, concerning for instance social responsibility or sustainable development:

- **Green bonds**
  - USD 754 billion of cumulative issuance between 2017-2019
  - 9% of green bond issuances for the water sector

- **Sustainability Awareness Bonds**
  - Bonds issued by the European Investment Bank to raise debt finance focused on water-related projects
  - EUR 500 million first bond in 2018
  - USD 1 billion second bond in 2020

- **Environmental Impact Bonds**
  - Performance-based financing structure to transfer performance risks to investors, issued by DC Water in Washington:
    - USD 25 million bond issued in 2016 for reduction of storm wastewater runoff through large-scale green infrastructure.
    - USD 3.3 million of possible extra payments, depending on the project’s performance

**Special purpose vehicles**

Special purpose vehicles can help overcome the small-scale nature of water authorities. They can help grouping together small-scale projects to collectively raise debt finance on capital markets. In the Veneto Region in Italy, for example, eight water utilities created so called hydrobonds to mutually raise EUR 500 million for capital expenditures for water services. (Rees, 2018; Gatti, 2018)

**Revolving funds**

Revolving funds can be an effective model to attract commercial finance and to ensure available funding for water-related projects in the future. The Clean Water and the Drinking Water State Revolving Funds (SRF) in the US are examples how priority water infrastructure projects can be financed through public loans, which leverage non-public sources of finance. The US Environmental Protection Agency and federal states provide loans for water infrastructure projects with below market interest rates with periods of up to 30 years, through refinancing, guarantees or purchase of local debt and bond insurance. Repayments and interest earnings are recycled back into the programme and thus finance future projects (see financing structure below) (EPA, 2020).
Dedicated financing institutions and funds to mobilise investment for water

**The European Fund for Strategic Investment (EFSI):**
The EFSI is an example of a dedicated fund to mobilise commercial finance for strategically important projects through EU funding. Thanks to a credit enhancement by the EC, the residual risk of the lending products are reduced significantly, unlocking additional and affordable private finance. By the end of 2019, additional investment totalled EUR 458 billion (EIB, 2020[27]).

**The ASEAN Catalytic Green Finance Facility:**
The financing facility was launched by the Asian Development Bank (ADB) in 2019, to strategically unlock private investment for infrastructure projects in the region, which contribute to environmental sustainability goals, including resilient water infrastructure and multi-sectorial projects. The facility will mobilise a total of USD 1 billion from the ASEAN Infrastructure Fund, ADB and other development partners such as the European Investment Bank, the German development bank KfW and the French development agency AFD. (ADB, 2020[28]).

Public-Private-Partnerships (PPP)

Public-Private Partnerships are long term agreements between the government and a private partner whereby the private partner delivers and funds public services using a capital asset, sharing the associated risks. PPPs may deliver public services both with regards to infrastructure assets, such as bridges and dams, and social assets, such as water utilities.

**PPP for flood protection in the Netherlands:**
The upgrade of the Afsluitdijk dyke was financed and implemented through a PPP. The project was awarded through a tender process to the private consortium Level, which is responsible for the design, construction, financing and maintenance over 25 years.

**PPPs for water pollution prevention in China:**
The Asian Development Bank’s Private Sector Operations Department is promoting PPPs to finance water supply and sanitation investments and arrangements including the prevention and rehabilitation of pollution in water bodies. One significant arrangement is the Integrated Water Management Project in China for lake and river pollution prevention and rehabilitation initiatives that involve multiple environmental interlocking facilities such as wastewater and sludge treatment plants or sewage collection systems, and services including riverbank reinforcement and wetland development.

Risk-financing instruments

Risk-financing instruments are a mechanism to promote the sharing and transfer of risks and losses and reduce (at least part of) the burden on public funds in case of disasters, such as floods and droughts.

**Insurances** can provide financial protection against water-related risks, such as flood damages and can serve as a risk-communication tool to help individuals rationalise their choices and incentivise behaviour to reduce exposure. One example is the natural disaster insurance system CatNat in France, which mandates insurers to extend property and vehicle insurance contract to cover damages from natural disasters, with premiums fixed by the Government following a principle of national solidarity. Other examples include weather-index-based insurances for crop losses or reduced yields in agriculture related to droughts or other extreme weather events.

**Resilience Bonds** seek to raise private capital specifically for climate resilient investments and proactive risk reduction projects, while transferring the risks to the capital market. One example is the Forest Resilience Bond for forest restoration and risk reduction from wildfires issued by Blue Forest Consecration and the World Resource Institute in California.

Climate change and new precipitation regimes can shatter the knowledge base and the business model on which risk transfer mechanisms – such as insurance – build. In the future, such mechanisms may need to evolve, as higher exposure to risks of drought or flood could drive insurance premiums above affordability or practical limits.

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19. CBI, 2020[29]
6. LEVERAGING BLENDED FINANCE

**Development finance can be used strategically to mobilise additional commercial finance.** Blended approaches aim at mobilising additional capital for investments for sustainable development in developing countries and can act as risk-reducing mechanism to increase lenders’ confidence. By deploying development finance in a way that addresses investment barriers that prevent commercial investment in SDG-relevant sectors, such as water and sanitation, blended finance operates as a market building instrument that provides a bridge from reliance on grant and other donor finance towards commercial finance. An example of a blended finance approach, the Agri3 Fund, is explained below. Similar approaches to use public funding strategically to mobilise commercial finance for water investments are also relevant in OECD countries.

To date, the use of blended finance models for water-related investments remains limited and only about 1.4% of private finance mobilised through development finance was dedicated to the water supply and sanitation sector between 2012-2017 (OECD, 2022[1]). The following figure shows the use of blended finance by sector and instrument between 2016-18.

![Figure 7 - Blended finance by select sector 2016-18](image)

**The AGRI3 Fund: Blended finance for sustainable agriculture**

The AGRI3 Fund is a blended finance structure aiming to catalyse private finance for sustainable agriculture, reforestation, CO₂ reduction and improvement of rural livelihoods. Launched in 2020 as partnership between Rabobank and UNEP, The Sustainable Trade Initiative IDH and the Dutch Entrepreneurial Development Bank FMO, the AGRI3 Fund aims at de-risking commercial loans by providing guarantees and thus unlocking at least USD 1 billion. The fund is composed of a USD 250 million guarantee ‘Finance Fund’, to which Rabobank and the Dutch Government have each committed USD 40 million, and a USD 50 million ‘Technical Assistance Facility’, managed by IDH. (IDH, 2020[32]).

![AGRI3 Fund](image)

1. Donors & Investors contribute with grants in a Technical Assistance facility and Junior capital in the Finance Fund.
2. Commercial and Development Banks contribute to the Senior debt and Mezzanine capital of the Finance Fund.
3. Technical Assistance is provided to the ultimate beneficiaries. Directly or indirectly.
4. Soft loans are provided.
5. De-risking guarantees and loans are provided to Banks and execution partners.
6. Commercial debt is provided to either execution partners or ultimate beneficiaries.

Source: (OECD, 2022[1]), based on (IDH, 2020[32])
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This Policy Highlights brochure is based on the OECD publication *Financing a Water Secure Future*

This brochure presents a summary of the key challenges and opportunities related to financing that contributes to water security and sustainable growth distilling insights from the Roundtable on Financing Water and related analyses. It covers a broad range of water-related investments, including water and sanitation services, water resources management, agricultural water and managing water-related risks (“too much”, “too little” and “too polluted”). It summarises findings from analysis of investments needs and financing capacities, trends in development finance for water and explores how water risks generate financial impacts for corporates. The brochure highlights options to address the financing challenge by strengthening the enabling environment for investment, making the best use of existing sources of finance, strategic investment planning and mobilising additional finance via a range of financing approaches. Finally, the brochure sets out a vision for future OECD work on financing water and for the Roundtable on Financing Water.

For more information:


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