

Roundtable on Financing Water

8th Roundtable on Financing Water, focused on Climate Action in partnership with the U.S. Government 23-24 September 2021

Session 2: Water as a lever for climate action: The investment opportunity

Aligning and scaling up financing flows for water security and climate action

Background Paper

Introduction

Strengthening “the global response to the threat of climate change, in the context of sustainable development” requires making “finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”.

Source: UN, 2015, Paris Agreement, Article 2

Water is an essential enabler and entry point for successful and sustainable climate action. Water-related investments can make considerable contributions to mitigation and adaptation efforts, thereby helping to accelerate the transition to net zero carbon dioxide emissions¹ and strengthening climate resilience (see [Background paper 1](#)). Investments in freshwater ecosystems, such as wetlands, for example, improve water quality and availability, while at the same time storing carbon, contributing to climate mitigation. 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. 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 through use of proceed bonds;
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.

This paper discusses the opportunities and challenges of aligning water security and climate objectives and highlights select examples of innovative financing mechanisms for investments for water security and climate action.

¹ According to the IPCC, pathways with no or limited overshoot of 1.5°C require global net anthropogenic carbon dioxide (CO₂) emissions to decline by 45% from 2010 levels by 2030, reaching net zero around 2045-2055, combined with deep reductions in non-CO₂ emissions

Questions for discussion

Which financing opportunities arise from aligning water security and climate objectives? (e.g. new revenue streams through carbon credits, private investments to mitigate climate risks, access to dedicated funds and financing facilities).

- How can these opportunities be seized and scaled up?
- Which challenges and barriers arise? How can they be overcome?
- Can you share innovative examples of financing approaches that contribute to water security and climate action?

Aligning and scaling up financing flows to support water security and climate action

Aligning action for water security and climate action is vital to build resilience for the future. [Background paper 1](#) discusses the pivotal role of water for climate action and highlights synergies and trade-offs that arise from aligning objectives related to water, mitigation and adaptation action. Financing plays a crucial role to accelerate the transition towards a carbon neutral, resilient and water secure future and investments need to be geared towards achieving water and climate objectives simultaneously, in order to achieve the Paris Agreement and the SDGs.

Scaling up and aligning financing flows for water security and climate action requires a conducive environment. Clearly defined roles and responsibilities in the water and climate landscape and holistic decision-making can overcome hurdles related to fragmentation and silo-thinking. Improved knowledge and expertise of project developers, stakeholders and financiers in cross-cutting water-climate initiatives are prerequisites for the preparation of bankable projects and sustainable investment decisions. Tools and processes to assess climate-related water risks and to monetise (co-)benefits of water-related investments are particularly important for scaling up and aligning financing flows. (UNESCO, UN-Water, 2020^[1]; Smith et al., 2019^[2]).

Assessing risks and making the economic case for investments in climate action and water security

For projects that contribute to climate mitigation, such as wetland restoration for carbon sequestration, climate benefits (through carbon storage) can be monetised through carbon credits and offset markets, generating additional revenues flows (see example below). Benefits for adaptation often translate into avoided damage costs or reduced vulnerability to increasing risks. Measuring and pricing climate- and water-related risks is thus essential to make the economic case for such investments. For example, a Swedish paper products manufacturing company assessed that seasonal and inter-annual variability in water supply poses a business risk of up to USD 218 million, which can be addressed by investing USD 31 million (merely 14% of the potential damage costs) in the repair of a leaking dam and other measures which simultaneously delivers benefits for the wider community (CDP, 2021^[3]). Climate- and water-risk assessment and pricing is thus essential to drive and attract private and public funds towards climate- and water-related investments. At present, climate risks have been and continue to be neglected in most investment decisions and information on water-related climate hazards is either neglected or missing. Furthermore, there is a lack of knowledge on appropriate solutions, risk management approaches, guidelines or standards (Global Commission on Adaptation, 2019^[4]; UNESCO, UN-Water, 2020^[1]).

Especially in developing countries, even basic information might be scarce, such as up-to-date flood maps or digital elevation models (Global Commission on Adaptation, 2019^[4]).

Further, climate-related water risks exacerbate over time, while traditional economic assessments cover and evaluate only short time periods. Given the longevity of many water investments, traditional cost-benefit analyses fail to incorporate exacerbating climate change and thus neglect significant future climate risks – leading to unsustainable investment decisions (Smith et al., 2019^[2]). Better hydrological risk assessment and improved methodologies to incorporate these risks, e.g. by extending cost-benefit analysis over longer timer periods, can thus help informing resilient investment decisions and they are vital to scale up finance flows for water and climate action (Global Commission on Adaptation, 2019^[4]). Requirements for companies and financial actors to disclose their climate-related risks can be an additional driver of investment and help financiers direct funds to investments that have a positive cumulative impact on climate and water outcomes (Harou et al., 2020^[5]).

The Financial Stability Board's Task Force on Climate-related disclosure (TCFD) establishes guidelines for companies to report their climate exposure and implications. While still voluntary, the UK, as the first G20 country, is planning to make the disclosure requirements mandatory and is advocating for other jurisdictions to follow. Another example is the World Bank's Decision Tree Framework, giving guidance to assess the climate risk level for water intensive investments and assessing efforts necessary to reduce risk (World Bank, 2016^[6]). The development of further tools and policies by central banks, financial regulators and ministries to integrate climate-related risk, including water-related risk, will promote accountability and harmonisation of targets, create incentives to reduce risks, and help shifting capital from old non-resilient water projects towards climate-resilient investments. [Background paper 3](#) discusses in more detail the role of water-related risks for investment decisions and the financial system.

The following section explores relevant financing models to align and scale up finance flows for water security and climate action. It will explore the financing opportunities that may emerge when explicitly and implicitly linking climate-related investment with climate objectives.

(1) Opportunities to attract new types of financiers and investors

Investors are increasingly interested in sustainable financing opportunities and are seeking for investments with positive climate outcomes. Globally, private climate finance has been gaining prominence over the last decade, rising from around USD 217 billion on 2010/11 average to almost USD 280 billion in 2018 (CPI, 2020^[7]; CPI, 2012^[8]). The biggest share came from corporations (57%), followed by households and individuals (19%) and commercial financial institutions (18%). Institutional investors only represent a minor share of less than 3% (CPI, 2020^[7]).

Use of proceeds bonds

Use of proceeds bonds for climate purposes have been gaining attention, green bond issuance has grown by 51% between 2018 and 2019, reaching USD 258 billion (CBI, 2020^[9]) and a variety of use-of-proceeds bonds linked to climate action or resilience have emerged, such as climate awareness bonds, sustainability awareness bonds, environmental impact bonds, catastrophe bonds or resilience bonds. Water-related projects with a climate or resilience element could tap into finance from this rapidly increasing climate-related use of proceeds bond market.

Climate Awareness Bonds

The European Investment Bank (EIB) issues so-called Climate Awareness Bonds (CAB) for projects contributing to climate action in the fields of energy efficiency, renewable energy, including hydropower, R&D and deployment of innovative low-carbon technologies and electric rail infrastructure. In 2020, EIB

issued EUR 7 billion in CAB and EUR 8.8 billion of disbursements were found eligible for allocation of proceeds from CAB issuance in the course of the year (EIB, 2021_[10]).

One example of a CAB financed project from the water sector presents the wastewater treatment project in Austria, which highlights the potential of the WSS sector to contribute to mitigation efforts and thus attract private finance tagged for climate action. The upgrade of Vienna's central wastewater treatment plant aims at reaching energy autarchy of the treatment plant by using sewage sludge as an energy resource for in-house energy needs. It includes the expansion of the collection network and storage facilities to prevent sewerage overflows, as well as the construction of primary sedimentation and digestion towers. The project will generate renewable energy from methane and thus reduce the plant's energy costs. Half of the EUR 300 million total project costs will be financed through an EIB Climate Awareness Bond. (EIB, 2021_[11])

Resilience Bonds

Resilience bonds seek to raise capital specifically for climate resilient investments and proactive risk reduction projects. The European Bank for Reconstruction launched the first resilience bond in 2019 which received an AAA rating and raised USD 700 million from commercial banks, central banks and insurance companies. BNP Paribas, Goldman Sachs, and Skandinaviska Enskilda Banken acted as joint book runners, which saw demand from approximately 40 investors in 15 countries. The proceeds from the five-year bond are used to finance resilience projects including the Qairokkum hydropower upgrade in Tajikistan and the Saiss water conservation project in Morocco (EBRD, 2019_[12]; Global Center on Adaptation, 2020_[13]). The former will increase the hydropower plant's installed energy generation capacity as well as strengthen the capacity to cope with expected impacts of climate change on the country's hydrological systems. The latter project includes the construction of irrigation infrastructure in Morocco with a transformative water transfer scheme that will deliver more than 100 million square meters of irrigation water to the Saiss plain annually. It aims at increasing water use efficiency, modern water demand management methods and at strengthening the adaptation capacity in the basin (EBRD, 2019_[14]).

Further initiatives include the State of California, drawing up plans to launch a resilience bond for drought preparation and wildfire prevention (Global Center on Adaptation, 2020_[13]).

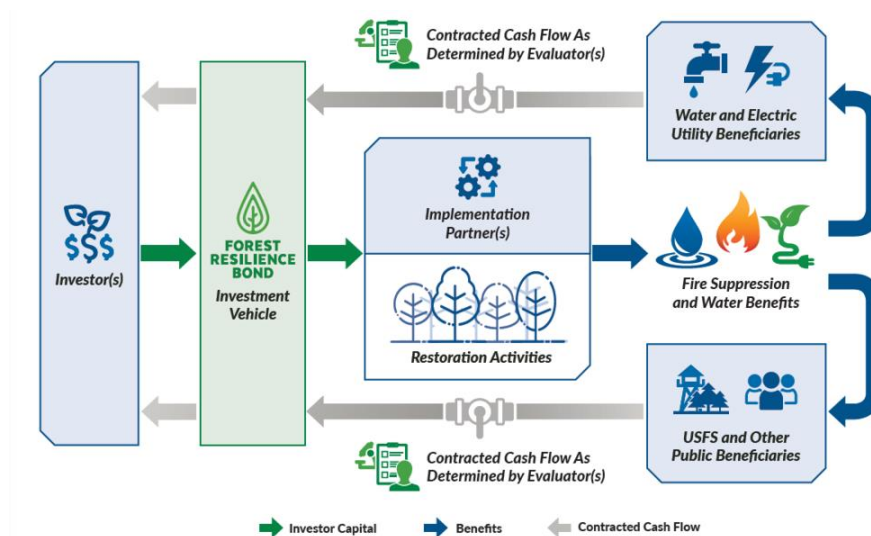
Forest Resilience Bonds

The NGO Blue Forest Conservation partnered with the World Resource Institute (WRI) to develop a Forest Resilience Bond to raise private capital for forest restoration and risk reduction from wildfires in 2018. The project promotes the sustainable management of the North Yuba River watershed, e.g. through tree thinning and meadow restoration, which reduces the risk of severe fire, improves watershed health and protects water resources. Private capital from investors including The Rockefeller Foundation, The Gordon and Betty Moore Foundation and Calvert Impact Capital fund the upfront costs of the USD 4.6 million project to protect over 6 000 ha of forestland. Multiple beneficiaries, including local utilities and the local government, share the costs of reimbursing investors over time, based on economic analyses of the services provided by the ecosystem. The utility provider Yuba Water Agency, for example, committed USD 1.5 million for reimbursement over five years, recognizing the projects' benefits to local water and power resources. The state of California committed another USD 2.6 million in grant funding coming from their Climate Change Investment program. In-kind support was allocated from the Tahoe National Forest and the National Forest Foundation for planning and project implementation. The financing structure of the Forest Resilience Bond (see Figure 1) provides financial flexibility for the project implementation – allowing to accelerate and scale of restoration treatment at times when needed. For investors the bond provides diversification and good returns and for the investor CSAA Insurance Group, it additionally reduces the risks of the Group's policyholders in that region. (WRI, 2018_[15])

Building on the success of the bond, a second Forest Resilience Bond is planned to be launched this year for an expanded phase of restoration works covering a larger area of over 20 000 ha of the Yuba river

watershed, leveraging about USD 25 million in total funding (Blue Forest, 2021^[16]; Yuba Water Agency, n.d.^[17]).

Figure 1. Financing structure of Forest Resilience Bonds



Source: (World Bank Group, 2017^[18])

Environmental Impact Bonds

Environmental Impact Bonds are tax-exempt municipal use of proceeds bonds with a performance based payment element, with the first bond being issued in 2016 by Quantified Ventures and DC Water. The District of Columbia Water and Sewer Authority (DC Water) issued the bond to finance a stormwater runoff management project including green infrastructure. The bond is a 30-year bond of USD 25 million with a mandatory tender in the fifth year. At the tender, there is provision for an additional payment, contingent on the success or failure of the green infrastructure project: If the storm water was reduced by more than 41% of the baseline, DC Water will make a one-time additional payment to investors of USD 3.3 million. If runoff is reduced less than a threshold of 17%, investors will make a Risk Share Payment to DC of the same amount. A performance between the two thresholds (17-41%) will result in no additional payment other than the basic principal and interest payable on the Environmental Impact Bond. This financing mechanism allows to share performance risk between the water authority and investors and reduces cost of capital for the issuer in the event of under-performance, while allowing additional returns for investors in the event of over-performance (EPA, 2017^[19]).

Another example presents the Environmental Impact Bond which finances coastal wetland restoration and resilience solutions to reduce damages from storm surge flooding and sea level rise in coastal Louisiana (Quantified Ventures, 2020^[20]).

Green bonds issued by the water sector

One example of green bond issuance in the water sector, is Anglian Water, the first utility company in the UK to issue a green bond in 2017, having raised GBP 1 103 million in green bonds since then. The company finances projects for water resource management and drought and flood resilience schemes and has segmented its investment plan into 12 categories according to their green and social characteristics. This allows the bank to tap into diverse pools of investors with different priorities for financial, social and environmental returns. The debt raised by the bank through UK-registered companies, is listed on the

London stock exchange, their first year bond will mature in 2025 with a return to investors of 1.625 percent. (Trémolet, S. et al., 2019^[21]; Anglian water, 2021^[22])

Another example is the green bond issued by the US local water utility Central Arkansas Water to finance the acquisition and protection of forest land for water quality conservation and improvement in 2020. The utility partnered with Encourage Capital and the World Resources Institute to raise capital from private investors through their USD 31.8 million bond which will be repaid to investors with a 2.14% interest. Predictable cash flows stem from a dedicated watershed protection fee that the utility had implemented. The investment will also yield future savings through avoided water treatment costs and has the potential to generate revenue streams through voluntary carbon offsets, timber harvests and non-timber forest products. The bond is the first certified green bond to acquire and protect forests specifically to support clean drinking water (WRI, 2021^[23]).

Looking at global green bond issuance tracked by the Climate Bond Initiative, the water sector only represents a minor share of 9% of all investments (CBI, 2020^[9]). Reasons for this relatively small share point to some clear limitations for certain water-related investments. Generally, bonds are largely used as refinancing instruments while project bonds only represent 1% of the total bond market (and less than 50% of the green bond market) (TEG, 2020^[24]). Further, green bonds are mostly accessible to large-scale, creditworthy issuers, who can provide clear revenue streams associated with their repayment, which can be challenging especially for landscape-based approaches or investments on water resource management. The international bond market prefers large minimum sizes (EUR 300 to 500 million), rendering it difficult for small- and medium-sized companies or municipalities (often the case for water utilities) to get access to bond finance (TEG, 2020^[24]). In this context, an important role falls to intermediaries, working to pool small and medium sized demands for financing, facilitating access to bond finance (OECD, forthcoming^[25]).

Further, current developments on green finance taxonomies can provide additional clarity to investors and could potentially increase the water sector's visibility on the investment market. The EU taxonomy on sustainable finance, for instance, will underpin the EU Green Bond Standard, and defines thresholds for activities to be considered as substantial contribution to mitigation and adaptation objectives. They include thresholds for investments for energy efficiency improvements for water utilities, shedding light on the mitigation potential of the water sector. Adaptation criteria make specific reference to nature-based solutions and other solutions to a variety of water-related risks, including non-life insurance (European Commission, 2020^[26]; European Commission, 2020^[27]). These developments can facilitate the mobilisation of finance for climate- and water-related investments. However, proving compliance with the criteria could create additional costs and barriers for project developers in the water sector. (OECD, 2020^[28])

Dedicated investment funds for climate-smart solutions and technology

Pictet Asset Management has launched a thematic equity fund seeded with EUR 652 million, investing in companies active in the development and deployment of smart and digital climate solutions for cities, including for smart infrastructure and sustainable resource management. The fund aims to capture the strong growth potential of this sector, which includes climate-smart and digital technologies for urban water supply and sanitation and water resource management (Pictet Asset Management, 2019^[29]; IFC, 2018^[30]). The International Finance Corporation estimates that climate-smart water in cities offers investment opportunities of USD 1 trillion globally by 2030 (IFC, 2018^[30]).

The Climate Resilience and Adaptation Finance and Technology Transfer Facility is the first commercial investment vehicle with a focus on expanding the availability of technologies and solutions for climate adaptation. The Fund helps companies, such as weather analytics, catastrophe risk modelling services and drought resilient seed companies, to expand into new sectors and geographic markets, which opens opportunities to improve data and knowledge availability in developing countries as well as developing and

implementing resilient water-related solutions. A waterfall financing structure de-risks private investment, enabling 20 -25% gross returns for commercial investors. (Climate Finance Lab, 2021^[31])

(2) Opportunities for new revenue streams and mobilising private capital to manage risks

Offset markets

The high carbon storage potential of water-related ecosystems, such as wetlands, mangroves or other coastal habitats, opens the opportunity to generate and sell “blue” carbon credits on offset markets. Companies, governments and other actors can buy carbon credits in order to offset their own emissions, and thus provide revenue streams for water-related projects such as wetland restoration, ecosystem conservation projects.

Tahiry Honko in Madagascar is an example of the largest community-led mangrove conservation project, helping to build flood protection and strengthen communities’ resilience to climate change. Started in 2018, the project conserves and restores 1200 ha of mangrove forests, generating 1300 carbon credits per year which generate USD 27 000 of revenue annually over the next 20 years. These revenues do not only cover project expenses, but will also finance infrastructure construction, education and healthcare for local villages as well as local marine management (Plan Vivo, n.d.^[32]; MPA News, 2020^[33]). The non-profit organisation for standardisation Verra has so far issued nearly 970 000 credits (representing 970000 metric tons of CO₂ equivalent) to blue carbon projects (Jones, 2021^[34]).

Investments in water-related ecosystems do not only provide climate mitigation benefits, but can also enhance flood protection and resilience for systems and communities – and can thus create credits for environmental offset markets. The US private investment firm Ecosystem Investment Partners (EIP), for instance, manages investments in large-scale ecosystem restoration and conservation and with committed capital from institutional investors launches projects for flood protection, improved water system operations, etc., generating environmental credits that can be sold on the environmental offset market. In 2019, EIP had USD 885 million in assets under management and has restored 180 square km of wetlands and over 280 km of streams (EIP, 2020^[35]).

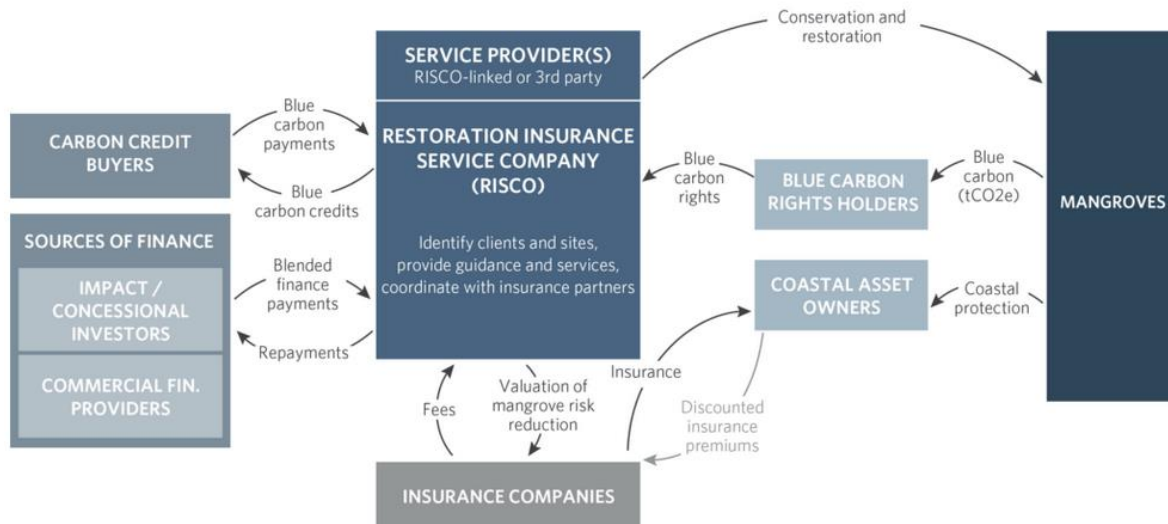
Insurance and risk-financing arrangements

Risk financing mechanisms, such as insurance, are effective tools to reduce risk exposure and build resilience to water-related climate risks and leverage private funds for these purposes. Insurance can help reduce risk by incentivising disaster prevention through reduced premiums and preventive standards. They can also mobilise significant finance for disaster risk reduction through capital investment in resilience-building measures (UNESCO, UN-Water, 2020^[11]). Insurance and other risk financing arrangements can have the additional benefit of helping price climate risk, thus supporting governments, companies and individuals in better decision-making (Global Commission on Adaptation, 2019^[4]).

One innovative financing model is used by the Restoration Insurance Service Company (RISCO) in the Philippines, which combines funding from insurances for flood risk reduction through mangrove restoration with the generation of carbon credits. The company assesses and monetises the coastal asset risk reduction value of mangroves and contracts with insurance companies which pay regular fees for mangrove restoration. The payments are linked to the site-specific calculation of flood reduction benefits provided by the mangroves. Additionally, RISCO assesses the carbon storage benefits of the mangroves to generate and sell blue carbon credits as additional source of revenue. While in the short-term, RISCO will rely on a blended mix of grants, equity and loans, it plans to become self-financing into the longer term. A pilot project in the Philippines targets to conserve and restore a total area of 4000 ha mangrove forests to avoid and sequester 600 000 tonnes of CO₂ and generate more than USD 10 million in revenue from

the insurance sector and blue carbon markets over ten years. Other potential sites for replication of the pilot have been identified in Mexico, Malaysia, Indonesia and Brazil.

Figure 2. Financing mechanism of the Restoration Insurance Service Company



Source: (Climate Finance Lab, n.d.[36])

Private sector investments to reduce exposure to water and climate risks

As previously discussed, private actors can have an economic interest in investing in improved water resource management to reduce their vulnerability to climate change impacts. In cases where climate- and water-related risks on business value are higher than the costs of mitigating them, private actors can have an incentive to address these risks using their own resources. Such investments can yield additional benefits for water security and resilience for surrounding communities and can deliver co-benefits for biodiversity conservation or water quality management. They can thus deliver public goods while reducing the burden on public funds.

The car manufacturer Volkswagen de México, for example, identified increased business risk due to drought at production locations in Puebla-Tlaxcala valley. To mitigate this risk, the corporate partnered with the National Commission of Natural Protected areas and invested USD 3 million over the 2013-2022 period to replant 300 ha nearby deforested volcanic slopes. This measure aims at restoring the functionality of ecosystems and groundwater replenishment in the valley, which enhances resilience against drought for both Volkswagen's own business operations as well as for the nearby city of Puebla (wbcsd, n.d.[37]).

Especially in multi-stakeholder settings, a central role falls to intermediaries, to facilitate the engagement and cooperation of different actors in investment and funding arrangements for water resources. One example is the International Water Stewardship Programme (IWaSP), which identifies, develops and implements measures to reduce shared water risks across stakeholders, including companies, civil society and governments. The programme has cooperated with over 30 companies, including international drinks and agri-food businesses such as Coca-Cola and Marks and Spencer and national companies such as Woolworths South Africa, and has secured materials, equipment and financing worth over EUR 3.3 million from the private sector supporting improved water resource management, wastewater treatment plant construction, and capacity building. The measures have benefitted over 860 000 people, including residents and water user organisations around Lake Naivahsa in East Africa (GIZ, n.d.[38]).

Own resources to address water security as well as climate action can also be used by the water sector: Box 1 in [Background paper 1](#) highlights how water utilities in the UK and Peru use their own resources to invest in improved water treatment processes to contribute to climate mitigation efforts - and yield cost savings by reducing their sludge management, disposal and energy costs.

(3) Opportunities from increasing strategic focus on climate action by governments and development banks

In line with current developments in international and national climate policy, governments and development banks are increasingly putting a strategic focus on climate action and adaptation plans and are increasing public budgets for these plans. The following section highlights financing mechanisms for climate-related projects financed by dedicated public climate funds and gives examples of water-related projects receiving funding from these sources.

National and subnational public climate finance

As each country's national determined contribution to the Paris Agreement as well as the National Adaptation Plans become mainstreamed into government spending plans, domestic expenditures by national governments may be a growing source of climate finance for water-related investments (UN, 2020^[39]). The UNFCCC estimates that USD 232 billion of domestic public finance was spent annually between 2015 and 2016, with USD 75 billion in developed countries and USD 157 billion in developing countries (UNFCCC, 2018^[40]). France, for example, has budgeted EUR 3.5 billion for the implementation of its 2018-2022 National Adaptation Plan (EEA, 2019^[41]). While the Paris Agreement does not make reference to water, it is identified as priority in most of the countries adaptation plans, further explored in Box 1.

Box 1. Water and the UN Framework Convention on Climate Change (UNFCCC)

The **Cancun Adaptation Framework**, established at COP 16 in 2010, makes specific references to water resources, freshwater, marine ecosystems and coastal zones. The framework promotes the development of *National Adaptation Plans* (NAPs), which identify countries' adaptation needs and outline implementation strategies to address these needs. Although most countries address water in their NAPs, only 18% (of 165 countries examined) addressed groundwater management and urban water and wastewater management.

The **Paris Agreement**, established at COP 21 in 2015, does not make a direct reference to water. However, water is identified as the number one priority for most of the adaptation actions laid out in the *Nationally Determined Contributions* (NDCs) and is directly or indirectly related to all other priority areas. Although countries focus largely on climate proof water supply and resilient water infrastructure, less than 20% of countries refer to detailed water-related project proposals. Moreover, only very few countries refer to strengthening water governance, institutions and integrated approaches to resilient water management, which is vital to promote synergy effects. As of mitigation commitments, water has not been extensively considered, creating an untapped GHG reduction potential for the revision of the NDCs towards COP 26 in November this year. According to an interim UNFCCC synthesis, revised NDCs indicate an increased focus on adaptation planning, synergies and co-benefits, and the consideration of social and economic consequences of response measures, compared to previous NDCs.

Source: (Global Center on Adaptation, 2021^[42]; AGWA, n.d.^[43]; UNESCO, UN-Water, 2020^[1]; Timboe, Pharr and Matthews, 2020^[44]; GWP, 2019^[45]; GWP, 2018^[46]; UN, 2021^[47])

UNFCCC Climate funds

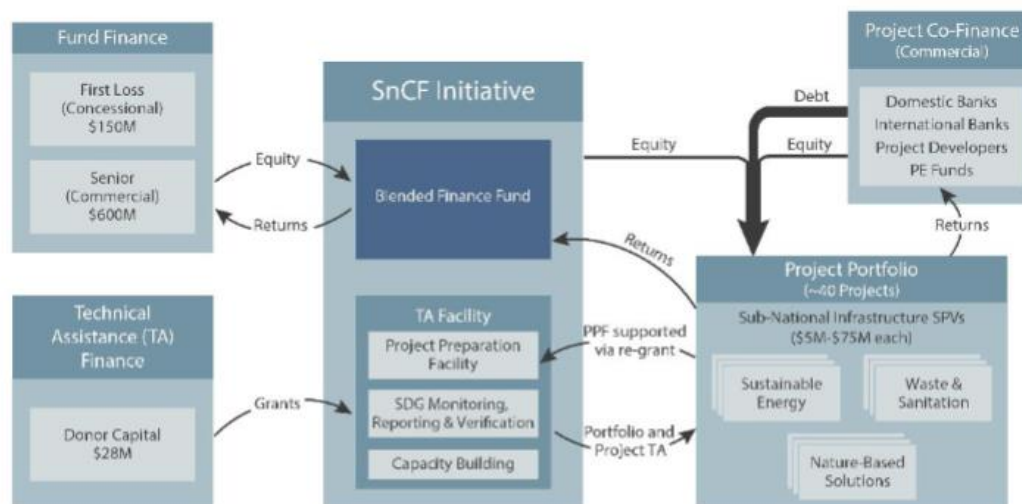
The UNFCCC has established a financial mechanism to provide financial resources to assist developing countries in implementing their mitigation and adaptation strategies. The various funds and financing facilities could be a source of funding for water-related projects with a strong climate rationale. As an operating entity, the **Global Environment Facility** was established in 1992 and manages the **Special Climate Change Fund** and the **Least Developed Countries Fund**.

The Adaptation Fund has committed USD 783 million to climate adaptation and resilience activities since 2010 and is mainly financed from sales of certified emission reductions under the Clean Development Mechanism. Additionally, the Fund receives contributions from governments, the private sector and individuals. The Fund finances projects in nine sectors, of which the following have a strong connection to water: Agriculture (16%), water management (14%), disaster risk reduction (14%) and coastal zone management (9%). A project addressing disaster risk reduction is located in Uruguay and Argentina, aiming at building resilience in vulnerable coastal cities and ecosystems of the Uruguay River. The 6-year project includes the implementation of sustainable infrastructure adapted to the adverse effects of climate change, community- and ecosystem-based adaptation measures, as well as the implementation of integrated climate risk management and early warning systems. From the total grant of approximately USD 14 million, USD 2.8 million have already been transferred since project approval in July 2019.

The **Green Climate Fund** (GCF) was established at COP 16 as a further operating entity of UNFCCC's financial mechanism. As of June 2021, a total of USD 10.3 billion has been pledged, of which USD 8.31 billion confirmed by 45 countries and regions and one city. Approved projects comprise a total value of USD 30.3 billion, including GCF financing and co-financing. The GCF structures its support through a combination of grant, concessional debt, guarantees or equity instruments to leverage blended finance and crowd-in private investment for climate action. One funded project is in Jordan, where the fund finances a USD 33.3 million project aiming to improve water use efficiency in agriculture, and thus ensuring water and food security and protecting livelihoods in light of climate change. The financial support consists of a USD 25 million GCF grant, topped up with a total of USD 3.8 million of grants through co-financing arrangements and USD 4.5 million co-financed in-kind payments. The project was approved in March 2021 and is projected to benefit over 210 000 people.

The bankability criteria of the Green Climate Fund and other prominent funding sources tend to screen out smaller-scale sub national level projects (UNESCO, UN-Water, 2020^[1]). The **Sub-national Climate Finance Initiative** is a recent financing instrument aiming to address this hurdle. The fund seeks to remove barriers to sourcing, financing and sustainability certification of mid-sized sub national infrastructure projects by de-risking through concessional finance and technical assistance as well as capacity building to strengthen local regulation and enforcement of contracts. It aims to attract primarily private institutional investment and to deliver certified climate and sustainable development impacts and nature-based solutions at global scale. For water project developers this may be a financing source to tap into in the future (Climate Finance Lab, n.d.^[48]; Green Climate Fund, 2021^[49]).

Figure 3. Financing structure of the Sub-national Climate Finance Initiative



Source: (Climate Finance Lab, n.d.^[48])

Box 2. Building a climate rationale for water-related projects and the burden of proof

In order to be eligible for finance from dedicated climate funds, water-related climate projects typically need to demonstrate a clear climate rationale, outlining how the project will respond to and address expected climate impacts and aligning with related policies and plans already in place, such as NAPs. Water-related project proposals with specific co-benefits and which describe how these co-benefits will be measured, are more likely to obtain political and financial support. Specific capacity building for water managers, project developers and basin authorities might be necessary to be able to attract climate finance for water-related projects.

One major hurdle is the ‘additional requirement’ of many climate financing agencies. It requires project proposals to yield climate benefits in addition to its normal operations and to address risks that can be clearly attributed to climate change. Technically, two types of analysis need to be conducted – one for the investment in a world without climate change, and the same investments in a climate-altered world, with the difference representing the additionally. This can create a ‘burden of proof’, especially for developing countries where precise climate data and modelling technology is scarce. Especially for NbS, water projects with non-infrastructure soft interventions or settings with high uncertainty, identifying the accurate value of additionally is challenging or impossible and presents significant obstacles. Some institutions, such as the Green Climate Fund, have addressed these concerns and modified or eliminated their conditions to strictly document additionally.

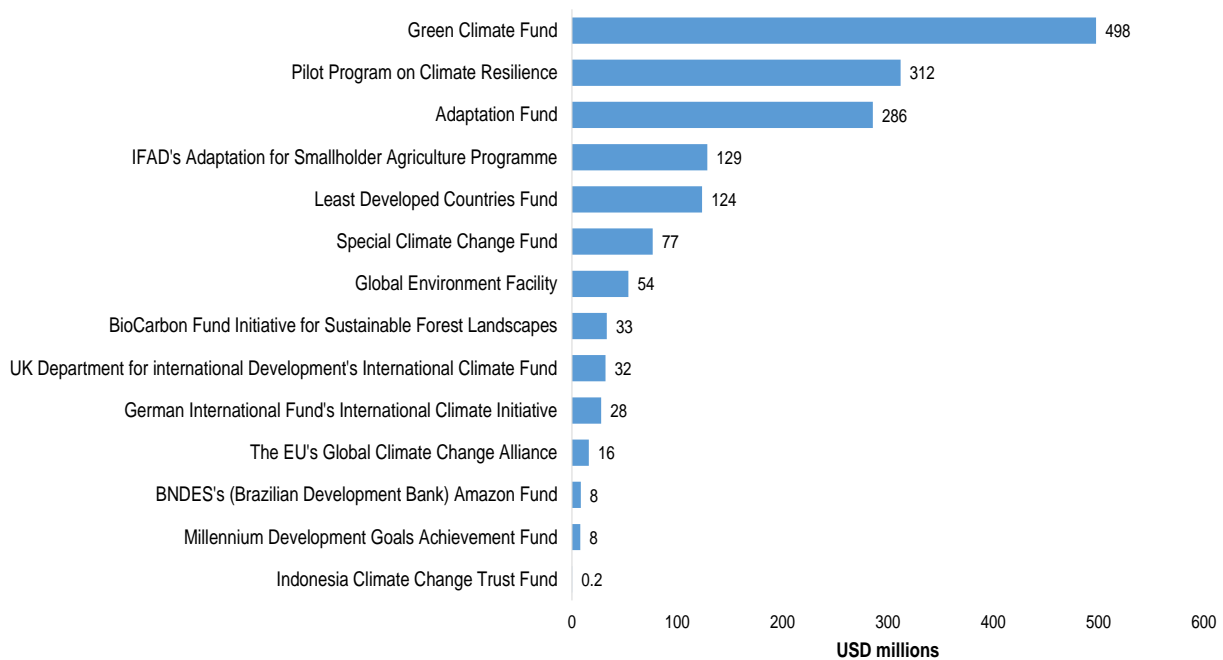
Source: (Kerres et al., 2020^[50]; UN-Water, 2019^[51]; Smith et al., 2019^[2]; Matthews et al., 2019^[52])

Other development finance and blended finance

Overall, climate finance from developed countries for developing countries has been rising steadily from USD 52.2 billion in 2013 to USD 78.9 billion in 2018 (OECD, 2020^[53]). Many development finance institutions have set dedicated climate targets for their investments. The European Investment Bank (EIB),

for instance, committed to increase its level of support to climate action and environmental sustainability to exceed 50 per cent of its overall lending activity by 2025, thus helping to leverage EUR 1 trillion of investment. The World Bank committed to doubling their climate investments to USD 200 billion from 2021-2025 (World Bank, 2018^[54]). Water-related projects that specifically address climate mitigation or adaptation and/or deliver co-benefits could potentially access these funds. Box 2 discusses requirements and hurdles for building a climate rationale for water-related projects. Figure 4 gives an overview of approved spending for water and climate resilience by different climate funds.

Figure 4. Approved spending for water and climate resilience by different climate funds

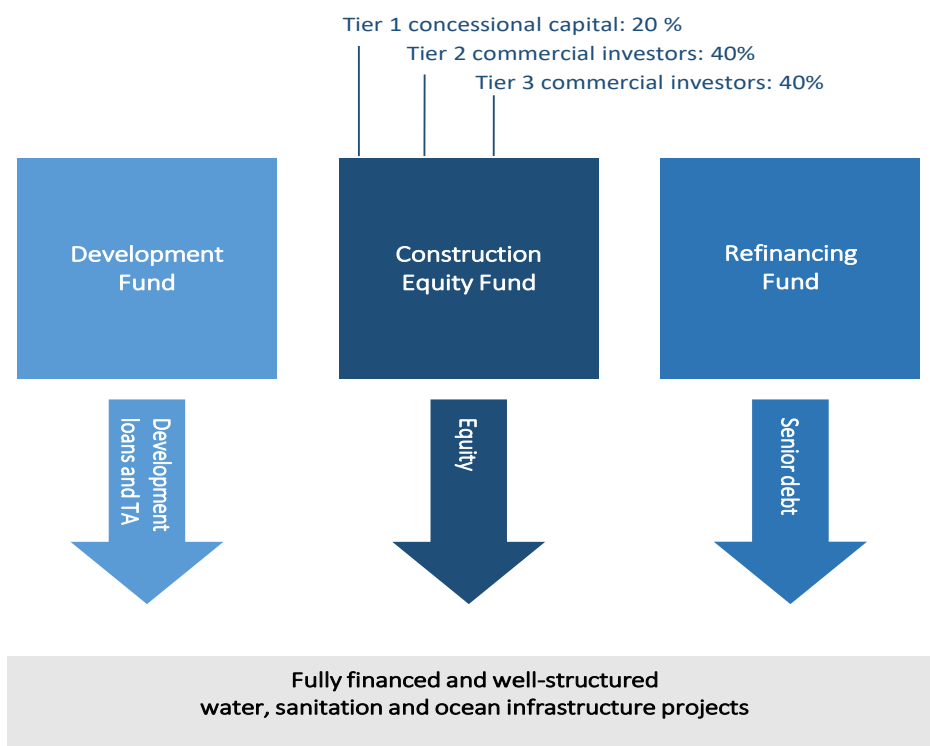


Note: Excludes electricity-generating related products but includes a small number of projects relating to energy use for irrigation, etc.

Source: Authors, based on GWP (2020) Addressing water in NAPs and Hedger and Patel (2018)

Development finance can be deployed strategically, e.g. by de-risking investments, to attract additional commercial finance for climate-water-related projects (OECD, 2019^[55]). One example of a blended financing instrument is the Dutch Fund for Climate and Development, managed by a pioneering consortium of Climate Fund Managers (CFM), the World Wildlife Fund (WWF), SNV Netherlands Development Organisation and is led by the Dutch Entrepreneurial Development Bank, FMO. It is funded by Netherlands Ministry for Foreign Affairs with a total value of EUR 160 and will run until 2037. The fund has a linked dedicated Water Facility which aims at financing investments in WSS, restoration and sustainable and climate-resilient management of wetlands, headwaters and floodplains and ocean infrastructure. The Water Facility Structure, called "Climate Investor 2", consists of three financing elements, a EUR 50 million Development Fund, a EUR 500 million Construction Equity Fund and a EUR 500 million Refinancing Fund. Tailored investment instruments allow investors to participate in specific project stages to meet their preferred risk-return requirements. Project developers benefit from continuous access to capital at different stages of the project. Figure 5 gives an overview of this financing structure. A total of EUR 75 million of DFCD's EUR 160 million will be allocated to the Water Facility to be deployed in about 30 projects, currently operating in 12 different countries (DFCD, 2021^[56]; SNV, 2021^[57]; CFM, 2021^[58]).

Figure 5. Financing structure of the Dutch Fund for Climate Development



Note: Refinancing Fund to be launched.

Source: (OECD, forthcoming^[59])

Other examples include dedicated financing facilities, supporting the coordination and the structuring of investments, as well as project preparation, such as the UK funded Climate Resilient Infrastructure Development Facility (CRIDF), providing technical assistance for climate-proof water infrastructure project development in Southern African countries. (CRIDF, 2021^[60])

Concluding remarks

Aligning investments for water security with climate action can create new financing opportunities, such as new revenue streams, finance from “new” types of investors looking for climate-related opportunities, as well as from public climate budgets or climate financing facilities. Public and private climate finance is largely dedicated to mitigation projects (93%), while the mitigation potential of water has been broadly neglected – creating opportunity to scale up and to align efforts and financing flows. While water is the central element and enabler for adaptation, the latter attracted only 5% of all climate finance (CPI, 2020^[7]) and just over one fifth of all climate finance from developed countries for developing countries² (OECD, 2020^[53]). The rapidly evolving climate crisis and increasing number of extreme weather events and disasters will contribute to emphasize the focus on adaptation and to attract and direct finance accordingly.

Current and future developments in the NDC and NAP processes and how they include water security will be an important element to align domestic actions on climate and water. The development of disclosure frameworks and sustainable taxonomies can also contribute to the alignment of water security with climate action and for directing investments to support a climate resilient and water secure future.

² Climate finance provided and mobilised by developing countries for developed countries in 2018.

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