Finance in Common

Water Finance Coalition

WATER CLIMATE FINANCE TOOLKIT FOR PUBLIC DEVELOPMENT BANKS (PDBS)

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1. Introduction

A crucial need to increase financing for the water sector, in order to have climate-friendly water and sanitation access for all

Throughout the world, billions of people still do not have access to safely managed water and sanitation services (respectively 3.6 billion people for sanitation and 2 billion people for water). This lack of access has major impacts on livelihood, health, biodiversity, gender equality and climate challenges. Moreover the covid-19 pandemic gave a brutal reminder of the criticality of such basic services.

There is an estimated financing gap of US$114 billion to achieve only universal coverage for water and sanitation, not including the need to reparation and replacement of ageing infrastructure, or the costs of projected population growth, urbanization and climate change (Hutton and Varughese, 2016; UNESCO, 2019; Biswas and Seetharam, 2008). Recent estimates from the World Bank suggest that achieving SDG targets 6.1 and 6.2 would cost low- and middle-income countries US$ 198 billion a year, with a further US$ 103 billion required for flood protection (World Bank, 2019). Investing in water sector has also co-benefits in terms of climate action which are not always properly acknowledged.

In short, there is the crucial need to increase significantly financing for the water and sanitation sector, in order to achieve United Nations Sustainable Development Goals SDGs 6 and 13.

Rationale of the toolkit

Climate change is water change

Scientific evidence from IPCC shows that the greatest risks of global warming are related to water. Climate change implies a rise in average temperatures, a change in average annual precipitation as well as an overall change in precipitation patterns, more frequent and intense water-related extreme weather events and rising sea-level. Climate change is having major impacts on the water cycle. Depending on the areas of the world, this leads to increasing and severe water stress, to increasing intensity and frequency of floods and/or droughts, and to increasing evapotranspiration and erosion.

As stressed in the latest IPCC report, waterborne disease and some vector borne disease will be increasing across the world under these changing conditions, including in places where risks are currently low. With changing rainfall patterns, in particular an increase in several vector-borne diseases is expected in many regions.

Through financing water PDBs can finance climate related actions

While the recognition of upcoming challenges related to climate change is unanimous, as well as the necessity to deploy efforts to mitigate and adapt to climate change, it is yet less acknowledged by PDBs that the water and sanitation sector is one way to contribute to those efforts, to achieve NDCs, a National Adaptation Plan –and of course the SDGs.

Climate change and water challenges are tightly inter-related. Indeed, when financing a water and sanitation project, a PDB is likely to finance actions contributing to climate change adaptation and/or mitigation. Many PDBs have specific objectives in terms of financing climate-related investments or are in the process of setting such objectives: this toolkit can help them in understanding how by investing in water and sanitation, they can invest at the same time in climate related actions and contribute to the local and global climate targets.

Aims of this Water and climate finance toolkit

In short this water and climate finance toolkit aims to:

- Explain how the water and sanitation sector is closely linked to climate change, and explain climate change finance tracking principles in water and sanitation projects through concrete examples: investing in water often means investing in climate change.
- Support PDBs in harnessing the climate finance potential of their activities so as to attract additional and/or more attractive resources
- Exhaustively list activities contributing to mitigation (ie. reducing greenhouse effect) and those contributing to adaptation. Each action category will be illustrated with a case study, from PDBs of various scales and geographies.

Principles for Climate Finance Tracking: eligible activities

ADAPTATION

Adaptation finance tracking relates to tracking the finance for activities that address current and expected effects of climate change, where such effects are material for the context of those activities.

The adaptation finance tracking process consists of the following 3 steps:

- Setting out the context of risks, vulnerabilities and impacts related to climate variability and climate change;
- Stating the intent to address the identified risks, vulnerabilities and impacts in project documentation;
- Demonstrating a direct link between the identified risks, vulnerabilities and impacts, and the financed activities.

This 3 steps approach for determination of an adaptation relevant activity is common to the MDB-IDFC or OECD-DAC approaches. Both request disaggregation at activity level.

MITIGATION

An activity can be classified as climate change mitigation where the activity, by avoiding or reducing GHG emissions or increasing GHG sequestration, contributes substantially to the stabilization of GHG concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system consistent with the long-term temperature goal of the Paris Agreement.

MDB-IDFC or OECD-DAC approaches both request disaggregation at activity level.

Climate finance tracking: accounting rules

The tracking of climate finance is granular: only the cost of climate relevant activities is tracked as climate finance.

The principle of conservativeness is central in climate finance reporting:

- MDB-IDFC Common Principles: when there is some uncertainty on the full climate relevance of an activity, under-reporting is recommended instead of reporting 100% of the volume of climate finance related to the eligible climate activity. The proportion of project finance that covers climate change activities should be then assessed through a qualitative or experience-based assessment (and is then lesser than 100%).

- OECD-DAC system: when the climate activity does not correspond to a principal objective of the project, the activity should be tracked less than 100% (*the percentage is determined individually by each OECD member in its own methodology*).

Two main methodologies of Climate finance tracking are used for water and sanitation projects

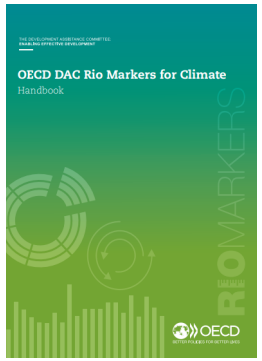
1/ The Common Principles for Climate Finance Tracking (or the Principles)

- They have been developed by the joint climate finance group of multilateral development banks (MDBs) and the International Development Finance Club (IDFC) based on their experience on the topic and with the intention to be shared with other institutions that are looking for common approaches for tracking and reporting.
- The principles consist of a **set of common Definitions and Guidelines including the list of activities, but do not cover aspects related to their implementation,** including quality control procedures which remain the sole responsibility of each institution and/or group.
  - *Common Principles for Climate Mitigation Finance Tracking*
  - *Common Principles for Climate Adaptation Finance Tracking*

- In IDFC Green Finance Mapping, SDG 6 related investments are accounted in various categories and sub-categories:
  - Adaptation to climate change: water preservation
  - "Other environment": Water supply, Waste water treatment, Industrial pollution control,
  - Mitigation of climate change: wastewater
- Multilateral Development Banks also publish a Joint Report on Climate Finance.

2/ OECD Rio Markers

- The OECD **Development Assistance Committee (DAC)** gathers on an annual basis statistics on official development assistance (ODA) and other resource flows to developing countries from bilateral and multilateral development co-operation providers.
- Since 1998, the DAC has **monitored development finance flows targeting the objectives of the Rio Conventions on biodiversity, climate change and desertification** through the CRS using the so-called "Rio markers". The Rio markers on biodiversity, climate change mitigation and desertification were introduced in 1998, with a fourth marker on climate change adaptation being applied to 2010 flows onwards.



Hazards to take into account by category of projects (adaptation risk screening)

Category *Project category*	Temperature related			Wind related	Water related				Solid mass related
PC Hazard *Chronic or acute*	Increasing mean temperature *Chronic*	Extreme heat event *Acute*	Wildfire *Acute*	Extreme wind event *Acute*	Increasing water stress *Chronic*	Seal Level Rise *Chronic*	Drought *Acute*	Floods *Acute*	Erosion/ landslides *Chronic*
Drinking water or waste water network	X	X			X	X	X	X	
Drinking water or waste water treatment	X	X			X	X	X	X	
Integrated flood risk management				X		X	X	X	X
Integrated water resources management	X	X	X		X	X	X	X	

This table shows per category of water and sanitation investment physical climate (PC) hazards to take into account in the project risk screening. A list of climate data portals and tools is available on page 24. Furthermore, for each category of project, risks to take into account are indicated in the following pages.

Table adapted from EBRD

Content of project example

For each category of water and sanitation investment listed below and based on WFC members project example, you will find in the following pages illustration of how water sector investments are concretely contributing to the climate agenda

Category of water and sanitation investment
A. Drinking water pipes (new or rehabilitation), water losses reduction
B. Drinking water treatment plants (either from surface water resources or from ground water resources)
C. Sewers / Drainage
D. Waste water treatment / Waste Water Treatment Plant / Industrial waste water treatment
E. Integrated Flood Risk Management
F. Integrated Water Resources Management / Investments in climate and water monitoring systems
G. Example of a project financed by a national PDB through a credit line made available by an International Financing Institution (IFI)

Typology of water investment
- Definition of the project category / what it covers
- Indication of how to take the climate into account in this type of project

Project example / Bank
- Objectives, location, budget, beneficiaries, status.

Project Example Climate contribution

Adaptation investment description:
- Description of activities in the project that address current and expected effects of climate change (including description of the actual and future climate risks)

Mitigation investment description:
- Negative- or very-low-emission activities
- Transitional and enabling activities

Climate finance tracking
- Climate Finance: global (US$) , adaptation (US$), mitigation (US$)
- Climate methodology used (components selected (description and budget) and / or main / secondary objective).

2. Examples of water and sanitation projects

A. Drinking water networks (new or rehabilitation), water losses reduction

Definition of the project category

Projects enabling the continuous channeling and delivery of safe drinking water to end users.

Indications on how to take the climate into account in this type of project:

- Adaptation: - Risk addressed: increasing water stress and drought , increase in climate sensitive waterborne disease.
  - Strengthen water resource monitoring (ground and surface water) to anticipate availability linked to climate stresses.
  - Ensure reduction of physical leakage in the network, rehabilitation or expansion of water access in places under high water stress or waterborne disease pressure
  - Adjust operation below nominal capacity to bear future climate shocks. Adjust technical designs to secure proper functioning even under a changing climate; Promote commercial practices and technologies to reduce water use in climate stressed areas; Introduce specific tariffs to limit withdrawal; Inform the population about how to behave during water shortages .
- Mitigation: - Choose carbon efficient and energy efficient technologies (more efficient pumping etc.) and compare the chosen solution with the alternative scenario.

Project Example Climate contribution

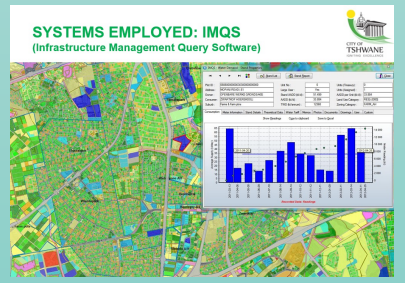
Adaptation contribution

- ✓ City of Tshwane is already exposed to water scarcity and extreme heat. In a context where futur projections show a warming in the range of 1.7 to 4.7°C for the end of the century, a strong increase in the duration of heat waves as well as an increase in the duration of dry spells, the program will improve water resilience through reduction of water losses (38% before the project), over consumption, and improve cost recovery (86% before the project).
- ✓ The rehabilitation of the water network will also reduce the volume of water losses between 22 ML/d and 37 ML/d. The program includes bulks meters, leak repair, retro fitting, connection replacement, meter replacement, boundary discreetness, water management device, and pressure management. The project also includes sectored demand management zone implementation, monitoring and benefit verification approach.

Mitigation contribution

- ✓ The projet does not have mitigation contribution.

City if Tshwane Water Conservation DBSA



- Investment/ activities: holistic Water Conservation and Water Demand Management (WCWDM) program to reduce recoverable real losses, reduce consumer over consumption, improve the cost recovery.
- ➢ Location:: City of Tshwane, South Africa
- Budget : Prefeasibility study (DBSA grant), $16K; Feasibiity study (IIPSA Grant, DBSA, AfD, EIB and KfW), $8,6M; Implementation (DFI, commercial, grant, COT), $270M CAPEX.
- Status: Execution
- Beneficiaries:. 3.4 m residents of the city
- Website:

Project climate finance tracking

❑ Climate Finance: the project has not yet been implemented but is possible to estimate that it would be categorized as 100% adaptation.

❑ Climate methodology used :

- All the project components could be counted as adaptation for their effect on reduction of water losses
- The project is not counted as mitigation for its water components.

B. Drinking water treatment plants: from surface water resources or from ground water resources

Definition of the project category

- Drinking water treatment plants are used to remove particles and organisms that lead to diseases and supply drinkable water. Raw (untreated) water is withdrawn from either a surface water supply (lake or stream) or from an underground aquifer. The water either flows or is pumped to a central treatment facility.

Indications on how to take the climate into account in this type of project:

- Adaptation: Risk addressed: increasing water stress and drought (increasing temperature and heat waves), reduction of potability due to climate stress and drought.
- Protection of water resources in a context of high water stress.
- Ensure that the river catchment assessment (conducted in consultation with local stakeholders) shows no significant adverse impacts on upstream and downstream quantitative and qualitative water resources and uses; implementation of catchment management plan (with relevant stakeholders) to minimize and mitigate impacts identified in the assessment.

- Mitigation: Choose low carbon and energy efficient technologies.

Project Example Climate contribution

Adaptation contribution

✓ In a context of increase of temperatures (air temperature over Côte d'Ivoire is projected to rise by between 1.7 to 3.7 °C by 2080 relative to the year 1876), heat waves and more intense heavy precipitations, the project increase access to sustainable drinking water service through the development of an additional water supply source (capacity of 240,000 m3/day to supply drinking water), increase the number of additional people with access to an improved water source; which increases to 1.5 million by 2021 contributing to the preservation of groundwater resources and human health (reduction the prevalence rate of waterborne diseases by 68% in 2021)

Mitigation contribution

✓ The project does not have mitigation contribution but the medium-term supply of the water pumping system will be done with photovoltaic solar energy to reduce GHG produced by the generators and the compensatory reforestation with local species in the project area.

Construction of a water treatment plant on the La Mé River BOAD

Investment/ activities:

- Construction of a raw water pumping station; a drinking water treatment plant (240,000 m3/d); an access road to the raw water intake (715 m) and a paved access road (1,655 m); 2 water towers of 5,000 m3.
- Location: Abidjan, Ivory Coast.
- Budget : Project cost US$ 267,5 M (BOAD Loan US$ 32,7 M). .
- Status: Execution
- Beneficiaries: 1.5 M. beneficiaries in the municipalities of Abobo, Anyama and Cocody
- Website:

Project climate finance tracking

❑ Climate Finance: it's possible to estimate that 100% of BOAD contribution to the project would be categorized adaptation.

❑ Climate methodology used :

- All the project components could be counted as adaptation due to diversification of water supply.
- The project is not counted as mitigation.

B. Drinking treatment plants and water services

Definition of the project category

When selecting drinking water treatment systems, communities can consider a variety of options including: Maintaining or operating a centralized drinking water treatment facility; Purchasing water that may be delivered from a centralized drinking water facility; Installing local wells closer to residences that may be managed locally; Using Point-of-Use (POU) or Point-of-Entry (POE) treatment devices in homes. POU or POE devices can be a technically simpler treatment option for small systems.

Indications on how to take the climate into account in this type of project:

- Adaptation: - Risk addressed: increasing water stress due to climate change, reduction of potability due to climate stress and drought, increase of climate-sensitive waterborne diseases.
- Anticipate the impact of climate change on water access sustainability (evolution of annual rainfall and impact on river flow/aquifer recharge, risk of an increase in extreme rainfall events that can contaminate resources, risk of increased waterborne diseases with rising temperatures) and its use (risk of increased human but also agricultural consumption for irrigation, and possibly for hydroelectricity production)
- Protect the water treatment plant against climate shocks (landslide, flooding).
- Mitigation: Choose carbon efficient and energy efficient technologies (efficient pumping etc.) and compare the chosen solution to alternative project.

Project Example Climate contribution

Adaptation contribution

✓ In a context of reduced water availability in basins fed by disappearing glaciers and future warming in the range of 1.9 to 5.1°C (compared to the reference period from 1971 to 2000), strong increase in the duration of heat waves, a change in annual total precipitation in the range of -10% in mountain areas and -2% in valley and a tendency for longer dry spells, the project will increase access to drinking water service: 1,263 rural households living in poverty, as well as 20 health and education units equipped with water tanks (10 m3 with 6 months storage capacity at 10 l/hab-day consumption supply). 80% of the beneficiary households in the Potosí communities will consume potable water at the end of the project (PH, turbidity, coliforms).

Mitigation contribution

✓ The water component of the project does not have mitigation contribution.

Harvesting water in Bolivia FONPLATA

- Investment/ activities:
  - 80% of the households benefited in the Potosi communities consume safe water at the end of the project (PH, turbidity, coliforms).
- Location: Potosí and Beni, Bolivia.
- Budget : Project cost US$ 10M (Loan from FONPLATA, with support of EIB, AFD and LAIF) of which US$ 5,4 M.for water component
- Status: Execution
- Beneficiaries: 1,263 rural households in 35 rural communities
- Website

Project climate finance tracking

❑ Climate Finance: FONPLATA categorized 55% of its loan as adaptation (US$ 5,5 M) for its water components.

❑ Climate methodology used :

- water tanks were counted as adaptation (5,6 M US$).
- Project is not counted as mitigation for its water components. However, the project also included components on solar panels that were counted as mitigation (US$ 3,3 M)).
- The other US$ 1,1 M. Is in management, supervision and support of the program.

B. Drinking water treatment plants: desalinization plan

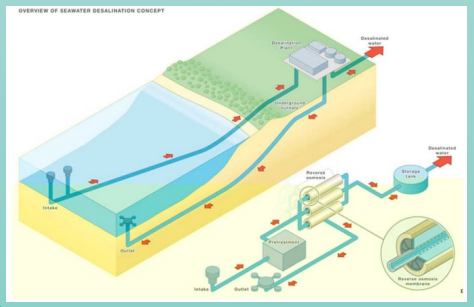
Definition of the project category

- A desalinization plant is an industrial facility that uses chemical or physical processes to convert sea water to drinking water. **It implies high energy consumption compared to other drinking water treatment technologies**. It is thus advisable from a climate relevance perspective only in locations where all other solutions (reducing water demand, reducing leakages, etc.) have already been exploited or are not available. 2 main types of desalination technologies exist – membrane (principle of osmosis) or thermal (uses heat often waste heat from power plants or refineries). The latter is usually not advisable from a climate relevance perspective since it is heavily energy intensive.

Indications on how to take the climate into account in this type of project:

- Adaptation: - Risk addressed: increasing water stress and drought
  - Anticipate possible **effect of climate change on the project design** (sea level rise, flooding, additional pre cleaning device to cope with more frequent bloom during heatwaves).
  - **Protect water resources in a context of high water stress** ; Shift from a salinized underground water towards a more continuous and safe drinking water source; **Combine with other water saving investment** as far as possible (in priority leakage reduction)
  - Stakeholder consultation and awareness rising on the additional resources produced use.
- Mitigation: desalination plant consumes significant amounts of energy. Choose low carbon and energy efficient technologies and compare the chosen solution to alternative.

Desalination plant in Ensenada, Mexico. NADB & Banobras



- Investment/ activities:
  - Design, construction and operation of a desalination facility with the capacity to 5.7 million gallons a day (mgd)
- **Location:** : Ensenada, Mexico .
- **Budget :** Project cost US$ 63.6 M (NADB Loan amount US$ 31.6 M; FONADIN grant US$ 14 M; BOT contractor contribution: US$ 18 M.)
- **Status:** completed and operational
- **Beneficiaries:** 96,000 residents
- Website:

Project Example Climate contribution

Adaptation contribution

✓ In **a context of future more severe and frequent drought events, increase of temperatures, heat waves and reduction of average precipitation** in 2070 and increase of population (by 2030, it is estimated that 100,000 new residents will need water services which does not take into account commercial and industrial needs); the project will **increase access to sustainable drinking water service** (highly stressed arid area) through the development of **an additional water supply source**, contributing to the preservation of groundwater resources (local groundwater aquifers are being depleted and suffering from seawater intrusion) and human health.

Mitigation contribution

✓ **The desalination plant consumes significant amounts of energy. However, the only other viable alternative to enhance water supply would have been to convey water from Colorado River**, which is located 235 km away and would have required pumping over 1,061 meters of elevation. The aqueduct alternative would consume an estimated 4.5 kwH per cubic meter while **the desalination plant, which is a more reliable source, consumes** 3.43 kwH per cubic meter **(approximately 25% less).**

Project climate finance tracking

❑ **Climate Finance :** NADB categorized 100% of its loan as adaptation (24,3 M US$)

❑ **Climate methodology used** :

- All of components : direct seawater intake; pretreatment facilities, pump station and water lines; reverse osmosis seawater treatment plant, post-treatment facilities; conveyance system for discharging concentrate into the ocean; storage tank, pump station and water lines to connect to Ensenada's drinking water distribution system; and ancillary civil works (buildings, roads, etc.). were counted as adaptation
- The project is not counted as mitigation.

C. Sewers / Drainage

Definition of the project category

- **Sewers (or sewerage system)** are an underground network of pipes that hold sewage (which is normally wastewater mixed with human waste), wastewater and water run-off from drains and directly into waste treatment plants or disposal points.
- A **drainage system** can be either natural or artificial, but the main purpose is to clear out rainfall water into a nearby reservoir or the sea.

Indications on how to take the climate into account in this type of project:

- Adaptation: **Risk addressed**: increasing annual rainfall, heavy precipitation and floods, increase of climate sensitive waterborne disease due to untreated or stagnant water
  - Identify **risk of increased extreme rainfall** as well as the **prevalence of diarrheal diseases in target neighborhoods** : sanitation will reduce the overflow of septic tanks and therefore the prevalence of waterborne diseases.
  - Take into account increase or decrease of floods, rainfall in the project design.
- Mitigation: promote low carbon treatment processes (i.e. aerobic treatments avoiding as much as possible anaerobic options) , promote low carbon sludge management and disposal -promote low carbon energy/heat generation

Project Example Climate contribution

Adaptation contribution

- ✓ In a context of **water stressed areas and of projected high risks of increased average temperature, heat waves, and risk of reduction of mean precipitation,** the project improves **water security and water supply** with the construction of new wastewater treatment plants, refurbishing pumping stations and water-related infrastructure as well as **extension of the water supply to roughly 140 000 unconnected households.**
- ✓ It also **helps to protect water resources** by reducing pollution in water and supports the reduction of **health impacts:** 700 000 people to benefit from improved sanitation infrastructure, including collection and treatment of wastewater

Mitigation contribution

- ✓ The project will contribute to climate change mitigation by reducing the emission of greenhouse gases due to the lack of proper treatment for the wastewater. The project will substitute anaerobic systems like septic tanks by aerobic wastewater treatment systems.

Copasa water and sanitation programme (Brazil) / EIB

- **Investment/ activities:**
- ➢ sanitation services to unserved customers, additional water connections and climate resilience investment components
- ➢ **Location:** Copasa, Brazil.
- **Budget:** Project cost 291 M€ (EIB Loan 145 M€)
- **Status:** execution
- **Beneficiaries:** 140.000 households for the water supply and 700 000 additional households with improved sanitation infrastructure.
- Website:

Project climate finance tracking

❑ **Climate Finance :** 60 % Mitigation (87 M€), 15% Adaptation (21.75 M€)

❑ **Climate methodology used** :

- The New wastewater treatment is counted as mitigation by comparing the benefit of the project in terms of reduction of GHG emission with the treatment of wastewater with the situation without project.
- Some of the investments in water supply systems located in water scarce areas, increase climate adaptation resilience thus are counted as adaptation.

D. Wastewater collection and treatment

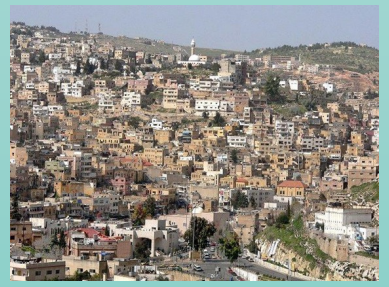
Definition of the project category

- System of underground pipes and maintenance structures used to convey wastewater including gravity sewers, pumping stations, force mains and other sewer conveyance methods.
- The project category may include: wastewater treatment plant (sewage, agriculture, industrial), sludge management and disposal, consulting and management component (project design, treatment process, environmental impact etc.)

Indications on how to take the climate into account in this type of project:

- Adaptation: Risk addressed: increasing water stress and drought
- Anticipate possible effect of climate change on the project design : sea level rise flooding WWTPs and pipes, repeated storm damage, or increased flooding in combined wastewater pipes ; Protect water resources in a context of high water stress ; Identify prevalence of diarrheal diseases in target neighborhoods that could increase with climate change.
- Mitigation: promote low carbon treatment process of wastewater (aerobic), low carbon energy/heat generation (generally via biogas generation and sometimes micro hydroelectricity

Sanitation program in Balqa, Jordan / AFD



- Investment/ activities:
  - Wastewater collection and treatment (new wastewater treatment plant)
  - Energy recovery (bio-digesters)
  - Waste water Hydropower generation
  - Complementary water treatment for agricultural re-use
- Location: : Balqa Governorate, Jordan.
- Budget : Sovereign loan of 60 M€ and EU delegation of 15 M€.
- Status: execution
- Beneficiaries: 354,000 beneficiaries in the Balqa area
- Website:

Project Example Climate contribution

Adaptation contribution

- ✓ Help to address actual water shortage (demographic pressure, climate change) and alarming future projection for water security (temperature rise of 3°C to 6°C and rainfall decline of 30% or more by the end of the 21st century) by treating wastewater and creating additional resource (13, 5 m. m3/y) for reuse in irrigation in the King Talal dam.
- ✓ Reduced sanitary risks (Prevalence of diarrheal diseases in target neighborhoods that would increase with climate change) by properly treating wastewater (pre-project septic tanks were contaminating groundwater table).

Mitigation contribution

- ✓ Harnessing of gravity flows instead: use of the elevation of treated water at exhausting point to generate electrical power while conveyed to the canal in lower altitude.
- ✓ Septic tanks offset toward low carbon treatment process: production of biogas from the anaerobic digestion of sludge: avoid methane emission when the standard practice is to landfill wastewater sludge without capturing the landfill gas produced), use this energy instead of fossil electricity in the network
- ✓ The Project avoided GHG emissions of around 15.000 tCO_2e per year.

Project climate finance tracking

- ❑ Climate Finance : 50% adaptation (37,5 M€), 50% mitigation (37,5 M€)

- ❑ Climate methodology used :
- ❑ All of the collection and part of the treatment infrastructure (treatment and transport of treated water can be counted as adaptation of health risk reduction and additional water resources.
- Project is counted as mitigation as it significantly reduces GHG emissions.

E. Integrated Flood Risk Management programs

Definition of the project category

- Flood risk management aims to reduce the likelihood and/or the impact of floods as well as increasing preparedness to such events through the development of flood risk management programs.-

Indications on how to take the climate into account in this type of project:

- Adaptation. Risk addressed: increasing risk of floods (urban, rivers) and landslides
- Prevention: preventing damage caused by floods by avoiding construction of houses and industries in present and future flood-prone areas; Protection: taking measures, both structural and non-structural to reduce the likelihood of floods; Preparedness: informing the population about flood risks and what to do in the event of a flood; Emergency response: developing emergency response plans in the case of a flood; Recovery and lessons learned: returning to normal conditions as soon as possible and mitigating both the social and economic impacts on the affected population.
- Mitigation: promote low carbon technologies and/or nature-based solutions for floods protection (e.g. planted areas for their water retention effect, protection of rivers beds, etc.)

Project Example Climate contribution

Adaptation contribution

✓ In a context of future projection, an increase of daily rainfall between 13% - 38% and 24%-29% for 5-day accumulation, the project aims to:

- promote measures aimed at reducing and/or preventing river flooding, as well as controlling stream-flows and mitigating the impact of floods in the Lujan River Basin (avoided damages under the most likely flood recurrence scenario is of USD 52.4 M)
- increase the adaptative capacity and reduce climate risks exposure by a) implementation of an Early Warning System (EWS) to improve population preparedness and b) institutional strengthening

Mitigation contribution

✓ The Project does not estimate a mitigation contribution, even though nature-based solutions considered in the project might work as carbon sinks.

Integrated Management Plan for the Lujan River Basin/ CAF

Map: Lujan River Basin

- Investment/ activities:
  - ➢ Promote measures aimed at reducing and/or preventing river flooding, as well as controlling stream-flows and mitigating the impact of floods in the Lujan River Basin,
- Location: Lujan River Basin, Buenos Aires, Argentina.
- Budget : Project cost 314 M. US$ (CAF loan: 220 M. US$; Local counterpart 94 M. US$)
- Status: Implementation
- Beneficiaries: 1,5 M. direct beneficiaries.
- Website: Comilu

Project climate finance tracking

❑ Climate Finance : 98% Adaptation (307 M. US$.)

❑ Climate methodology used :

- Project components were accounted as adaptation for their flood risk reduction effect: Engineering studies and others; Water conveyance works - enlargement of the river channel and of water retention ponds; Construction of the retention ponds and replacement of lock gates; Works for bridge replacement and enlargement; Environmental and land-use issues; Early Warning System
- The remaining 2% includes the financial costs and the costs for project administration, institutional strengthening.

E. Integrated Flood Risk Management: river basin scales.

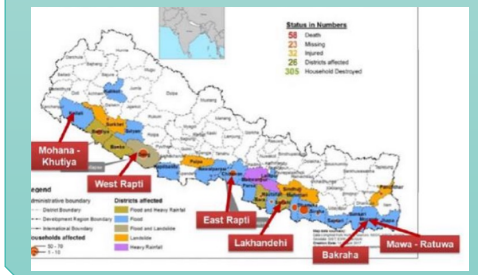
Definition of the project category

- **Structural measures**. aim at reducing the combined effect of flood hazard and exposure, either by lowering the peak flood levels or by increasing the levels of protecting barriers, such as dikes.
- **Non structural measures** focus primarily on reducing the vulnerability of people, assets, and economic values in the flood prone area through better planning and management of human settlements.

Indications on how to take the climate into account in this type of project:

- Adaptation: **Risk addressed**: increasing risk of floods (urban, rivers) and landslides
- Understanding the fundamental behavior of river basin floods is a key component in identifying solutions to mitigate their negative impacts. The need for protection also depends on the level of flood hazard for that area and on its level of exposure, including future or planned exposure. Anticipate conflict with other water-related interests such as hydropower.
- Mitigation: protection and/or rehabilitation of water bodies, swamps and wetlands as carbon storage, related studies or research, e.g. limnology.

Priority River Basins Flood Risk Management Project (NEPAL)/ADB



- Investment/ activities:
  - Flood protection infrastructure and maintenance
  - Flood forecasting and response systems
  - Flood prevention and preparedness capacity building
- **Location:** six river basins in the Terai Region (Nepal)
- **Budget :** 63 M. US$ (40M. US$ Concessional loan, 10M. US$ grant)
- **Status:** Approved 2020, target completion 2027
- **Beneficiaries:** estimated population is 1.8 M., with 70,428 persons exposed to the 1- in-50-year flood
- Website:

Project Example Climate contribution

Adaptation contribution

- ✓ The region which has experienced recurring major flood events in the recent past is forecast to suffer from **increased frequency and magnitude of extreme precipitation events** (high risk to precipitation increase, flood and precipitation-induced landslides).
- ✓ The project includes: (i) **hydraulic structures** that contain severe floods largely within river channels and provide 'river training (Land embankments and solids spurs)'; (ii) a **flood forecasting and early warning system** (FFEWS) capable of alerting people in the basin to a pending flood; and (iii) training of people and local government officials in **community-based disaster risk management** (CBDRM).
- ✓ the project design also incorporates increased embankment levels to account for increased flood flows and the ability to be increased in height or modified if conditions change

Mitigation contribution

- ✓ Even if the Project does not have mitigation contribution. It is worth mentioning that some land embankments will use nature based solutions (i.e. planted with flora that can prevent soil erosion along the embankment)

Project climate finance tracking

❑ **Climate Finance :** 7 M US$ (adaptation)

❑ **Climate methodology used** :

- ADB counted as adaptation project components to make the investments resilient to changing climate and weather conditions in the area through appropriate structural designs (increase embankment height), flood forecasting and early warning systems, capacity building at the institutional and community levels.
- Project is not counted as mitigation.

F. Integrated Water Resources Management: transboundary river basin development

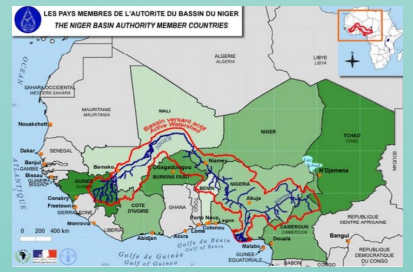
Definition of the project category

- IWRM is a cross-sectoral and regionally driven planning and policy approach that promotes the coordinated development and management of water, land and related resources, stakeholder participation in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (UNDP).

Indications on how to take the climate into account in this type of project:

- Adaptation: Risk addressed: increasing water stress (quantity and quality) and multi-year drought, Increasing mean temperatures and extreme heat event that resulted in biodiversity losses and social and economic vulnerability.
- Anticipate possible effect of climate change on the river basin, protection of water resources in a context of high water stress taking into account impact of the project on the upstream and downstream as well as increase of water demand with population growth and increase of temperature. Promote water resource demand management and reduction of loss and apply IWRM Approach towards Climate Resilient Growth in the Niger basin.
- Mitigation: promote protection and/or rehabilitation of water bodies, swamps and wetlands and agroforestry management towards reducing GHG emissions and increasing carbon sequestration as carbon storage, related studies or research. – improve knowledge on river dynamic that could be used to pilot hydroelectricity production.

Program for integrated development and adaptation to climate change in the Niger basin (PIDACC)" AFDB/ GC Fund



- Investment/ activities:
  - Building the resilience of ecosystems and natural resources; Building the people's resilience; and program coordination and management.
  - Location: Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger and Nigeria.
- Budget: project cost 209.9 M US$ AFDB (78 MUS$), GCF (67,8 MUSD) , GEF (12.9 MUS$), FIP (9 MUS$), EU (18 M euros).
- Status: execution (2019/2025)
- Beneficiaries: 4 million small producers in the nine (9) countries of the Niger Basin
- Website::

Project Example Climate contribution

Adaptation contribution

- ✓ Residents of the Niger Basin (estimated at 130 M.), are highly dependent on natural resources (rain-fed agriculture, livestock farming and fishing - all sectors of which are highly vulnerable to climate change. The growing aridity and the dwindling of water flows observed (reduction of the total annual rainfall between 20 to 40% over 60 years) associated locally with land pressure, have highly contributed to the widespread degradation of natural resources, the worsening of water and wind erosion and the silting of the Niger River and have undermined the people's living conditions and the biodiversity of the Basin. This program will address these drivers in a context of a projected increasing climatic variability (seasonal, annual and decadal timescales) and temperature (between 10C and 30C for 2050) by implementing a series of integrated actions that reduce the silting of the Niger River, improve natural resources management and enhance the population's ability to adapt to climate change (4 M. people directly and 10 M. indirectly ~50% female).
- ✓ *Enhanced climate resilient landscapes developed as a hedge towards climate extremes (*40,000 ha — forestry; 26,000 ha —agroforestry; 10,000 ha of dunes stabilized; 110,000 ha of degraded land restored; Mechanical and biological management of 45,000 (m3) of ravines undertaken)

Mitigation contribution

- ✓ The project includes some mitigation activities: forestry (regeneration of forests, agro-forestry into farming systems on 26,000ha of selected watersheds) and land use and avoid 7 M tCO2 eq (1.4 M. T. annually).

Project climate finance tracking

- ❑ Climate Finance : 85% Adaptation (179 M US$) ; 15% Mitigation (30.9 M US$)

- ❑ Climate methodology used:

- Project is a cross cutting, The majority can be counted as adaptation (85%) including IWRM, Increased resilience and Enhanced livelihoods of the most vulnerable people, Strengthened adaptive capacity and reduced exposure to climate risks; Improved management of land or forest areas and integration of agro-forestry into farming systems.
-Mitigation through: sequestration rate of 53 T. CO2 eq./ha; for assisted natural regeneration and for trees planted for the purpose of dune fixation (50 T. CO2 eq./ha, FAO, AGRHYMET).)

G. Example of an investment financed by national PDB through a credit line made available by an IFI

Definition of the project category

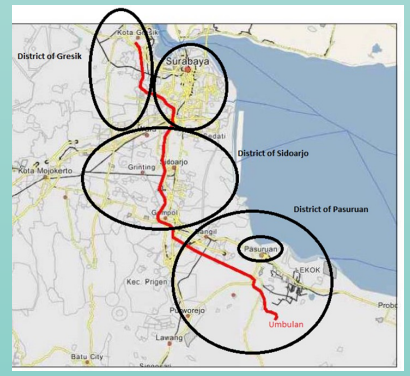
Credit lines involve loans to one or more financial intermediaries which then on-lend to private enterprises. Some credit lines are stand-alone operations. However, most are part of broader projects which have other components, such as technical assistance to enterprises, financial intermediaries and other public sector institutions that provide services to the private sector.

Indications on how to take the climate into account in this type of project:

- Use tools and methodologies to assess climate opportunities and risk for investment (climate risk screening and carbon footprint) across the general scope of the client activities.
- Defines then climate objectives (mitigation and adaptation priorities) for the credit line.
- Monitor the credit line climate performance / indicators.

- Adaptation: support to activities increasing climate resilience and/or ensuring all investment are climate proofed.
- Mitigation: promote low carbon technologies and process and/or nature-based solutions

Projet Umbulan PT SMI/ AFD



- Investment/ activities:
  - Regional Water Supply Project (RWSP) in Ambulan financed by PT SMI, State-owned Enterprise in charge of development of national infrastructures (through an AFD credit line).
  - The project comprises: treatment facility and reservoir, 96km of transmission network, secondary pipes.
- Location: East Java, Indonesia
- Budget: Project cost is estimated 165 M US$. (PT SMI loan finances 39 M US$ through AFD's credit line of 100 MUS$)
- Status: construction.
- Beneficiaries: around 1.6 million people.
- Website

Project Example Climate contribution

Adaptation contribution

- ✓ The project is designed **to tackle water supply shortage in 5 local jurisdictions of the East Java Province:** the Regency (District) of Pasuruan (where the Umbulan Springs is located), the City of Pasuruan, the Regency of Sidoarjo, the City of Surabaya and the Regency of Gresik, **which suffered from decreasing water quality** due to pollution, sea water intrusion, low services coverage and **in a context where water resources will be exposed to different risks due to climate change:** sea level rise (35/40 cms relatively to year 2000), changing precipitation patterns and decrease of precipitation (nearly -15% in 2100, Cordex data) and increasing water stress (source : Aqueduct/WRI).
- ✓ The project will offer access to **clean water to ±1.3 million population (260,000 households)** in the 5 mentioned areas through a production system 4,000 litres/second capacity; a transmission System (93 Km) and an tapping pope at 16 locations.

Mitigation contribution

- ✓ The subcomponent of the project: Regional Water Supply Project (RWSP) in Ambulan does not include mitigation aspect. However, other subcomponents of PT SMI credit lines dedicated to renewable energies (solar, hydro) were regarded as mitigation activities.

Project climate finance tracking

❑ **Climate Finance:** PT SMI loan can be counted 100 % Adaptation (39 M US$) as it provides a sustainable access to water resources in a context of water resources reduction because of climate change

❑ **Climate methodology used** :

- Components that can be counted as adaptation are : construction of the intake, treatment plant, reservoir and the transmission network for the additional water resources ensured.
- The project is not counted as mitigation for its water supply component.

3. A few tools and data bases available

The following slides indicate a few tools that can be used for water and sanitation investment climate risk screening:

- Climate data portals
- Climate tools and guidelines
- Climate finance Taxonomy

Climate data portals

Name	Level of difficulty	Contents	Web link
Thinkhazards (GFDRR/ WBG)	Simple	ThinkHazard! provides a general overview of the natural hazards present in a given geographical area and which should be taken into account when designing or implementing a project, the objective being to strengthen resilience to disasters and climatic shocks . This tool highlights the degree of probability of occurrence of various natural hazards in the area concerned (very low, low, moderate and high), provides guidelines to reduce the impact of these risks and recommends documentary resources to go further. It has often un sub city resolution scale.	http://thinkhazard.org/fr/
Aqueduct Water Risk Atlas WRI	Simple	Aqueduct's tools use open-source, peer reviewed data to map water risks such as floods, droughts and stress. The tools provides current and future climate analysis and allows for trend disaggregation at watershed scale.	https://www.wri.org/applications/aqueduct/water-risk-atlas/
Climate Change Knowledge Portal (WB/ GFDRR)	Moderate with advanced options	The Climate Change Knowledge Portal (CCKP) provides global data on historical and future climate, vulnerabilities, and impacts. You can access future climate projections under CMIP 5 or CMIP6 data. Resolution is 100 km*100 km. You can access synthesized Country Profiles to gain deeper insights into climate risks and adaptation actions.	https://climateknowledgeportal.worldbank.org
Data Access Platform (DAP) Climate Information	Advanced	The DAP has been supported by the GCF. It provides less pre-calculated indicators than the CCKP but has specific features such as i) water discharge and water runoff projections and ii) regional model data from Cordex	https://dap.climateinformation.org/

Climate tools and guidelines

Name	Contents	Mitigation/ adaptation	Web link
ECAM WaCClim	This open source tool enables for carbon footing assessment in the WASH sector ECAM empowers water and wastewater utility operators to assess their greenhouse gas emissions and energy consumption. Overview of system-wide greenhouse gas emissions IPCC-2019 compliant and open source	Mitigation	http://www.wacclim.org/ecam/
OECD – Water as a lever for climate action : the investment opportunity	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.	Adaptation	https://www.oecd.org/water/Background-paper-RT-on-Financing-Water-and-Climate-Action-Session-2.pdf
WASH Services and Climate Change Impacts and Responses	This guide draws on and summarises literature and research on climate change, water resource management and water and sanitation services	Adaptation	
Guidelines for Climate Proofing Investment in the Water Sector Water Supply and Sanitation (ADB)	This publication, Guidelines for Climate Proofing Investment in the Water Sector: Water Supply and Sanitation, presents a step-by-step methodological approach to assist project teams in managing climate change risk in the context of water supply and sanitation investment projects (where "sanitation" is to be limited to sanitation sewerages).	Adaptation	
Cities scan (WB)	As a starting point for engaging with cities on resilience planning, the CRP has developed the City Scan, which combines large amounts of spatial and socio-economic information pertinent to city-level decision-makers to inform initial dialogue around urban resilience challenges. . The City Scan enables cities, World Bank teams, and development partners to engage in preliminary dialogue about natural hazards and disaster risks in key sectors and geographic areas which need to be addressed through coordinated investment.	Adaptation	https://www.worldbank.org/en/topic/disasterriskmanagement/brief/city-resilience-program

Climate finance Taxonomy: for more advanced climate analysis

Name	Contents	Web link
EU Taxonomy for sustainable activities	The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. It could play an important role helping the EU scale up sustainable investment and implement the European green deal. The EU taxonomy would provide companies, investors and policymakers with appropriate definitions for which economic activities can be considered environmentally sustainable. In this way, it should create security for investors, protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed. The Taxonomy Regulation establishes six environmental objectives • Climate change mitigation • Climate change adaptation • The sustainable use and protection of water and marine resources • The transition to a circular economy • Pollution prevention and control • The protection and restoration of biodiversity and ecosystems 3 categories of activities might apply to water and sanitation project: Water collection, treatment and supply Centralized wastewater treatment Anaerobic Digestion of Sewage sludge	https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

4. Perspectives

Perspectives

This toolkit aims to show that tracking climate impacts of water investments **is possible even with limited technical capacity**. Implementing climate financetracking at each PDB level is a powerful tool to make financing of water investments more attractive to PDBs or co-financiers.

This simple toolkit can be a way to help PDBs in engaging further in implementing a climate finance tracking of their water investments. By doing so, they may even obtain internal and external incentives to increase their financing activity in favor of the water sector.

This deliverable was jointly drafted by national PDBs and IFIs. Therefore, not only it may help interested national PDBs to **understand how IFIs do climate finance tracking** when financing water investments, but thanks to this better understanding, national and regional PDBs may even **be able to attract additional sources of financing and support** from IFIs for the water sector from a climate perspective.

In the next steps of this tool's life, mentoring and cooperation among PDBs Water Finance Coalition members will be key in order to spread good practices and support PDBs willing to progress and engage further.

Note that this toolkit reflects on water projects contributing both to climate adaptation and mitigation. It underlines once more the huge potential of the water sector for contributing to climate adaptation and building resilient countries.

We hope this document can open the floor to an enhanced cooperation between national and regional PDBs and International Financing Institutions (IFIs), whether through enhanced technical dialogue, joint co-financing of projects or through credit lines from IFIs to PDBs focused on water & climate.

From Finance in Common to a Water Finance Coalition

Public Development Banks are banks located within the public sphere by mandate, ownership or governance. PDBs have a specific mandate to deliver on public policy objectives that support the economic and social development of a country or region. There are an estimated 452PDBs worldwide (AFD 2020a), 80% is fully government-owned and they finance US $2.3 trillion annually, representing 8 to 10 percent of global public and private investments (UN, 2021).

During the course of Finance in Common Summit (November 2020), a call for action to PDBs for a Water Finance Coalition has been launched jointly by AFD, CAF, EIB, WB and Sanitation and Water for All (SWA) with the objective of improving the financing of water & sanitation in order to achieve the SDG 6 and the Paris agreement goals, and to contribute to biodiversity protection. In 2021, several PDBs have answered the initial call by engaging in a thematic working group and participating to a study on the financing of SDG 6 by national PDBs which is now completed. Since then, the Water Finance Coalition formalized its governance: during its first year of activity the coalition has been chaired by AFD (France) and co-chaired by BANOBRAS (Mexico). CAF became Chair in june 2022, with AFD and Banobras as cochairs. The Secretariat of the Coalition is operated by IRC (Netherlands). The Water Finance Coalition now meets quarterly, with more than 75 participants each time representing more than 40 institutions.

The Coalition aims to animate regular discussions and workshops around challenges raised by the specificity of the sector financing (sharing experience, good practices and bottlenecks), produce knowledge and concrete tools, and advocate to improve the financing of water and sanitation during major sectorial events.

More on www.waterfinancecoalition.org/.

Thank you