Masterclass on Climate Resilient Infrastructure Public-Private Partnerships

African Union

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ICSI International Coalition for Sustainable Infrastructure

Module 4:
Mobilizing Climate Finance

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Module 4 Enabling Objectives

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At the end of this Module, participants will be able to:

- Discuss funding and financing for PPPs in Africa.
- Identify infrastructure financing modes and funding sources.
- Describe financing sources and investments in Africa.
- Describe financing options for Nature-based Solutions (NbS).
- Outline recommendations for practitioners and policy-makers.

Overview

Funding and financing for PPPs

Climate finance landscape

Climate finance for infrastructure PPPs

Financing nature-based solutions

Recommendations for practitioners and policy-makers

Overview

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Climate finance for adaptation

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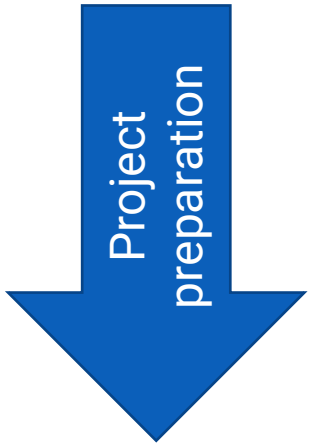
Funding and financing for PPPs in Africa



Project preparation (upstream funding/ financing)

- **National/ public project preparation funds** (sometimes established or hosted within PPP-units)
- **Regional public project preparation funds** e.g. NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF), African Water Facility (AWF) and Climate Resilient Infrastructure Development Facility (CRIDF)*
- **DFIs** e.g. Africa50, PIDG TA, USAID, DFC, USTDA, TDB, AFC
- **Private sector investors / developers / contractors / operators** (in the case of unsolicited bids)

Project implementation (downstream financing)

- **Equity investors** – private sector investors / developers / operators investing in the project and infrastructure funds (e.g. Meridiam, Africa 50, InfraCo)
- **Debt providers** – DFIs and commercial banks, also increasingly (local) pension funds and other institutional investors and climate funds
- **Credit-enhancement providers** – e.g. AfDB, Dhamana, MIGA, GuarantCo

*These are members of the Project Preparation Facilities Network (PPFN). The Project Preparation Facilities Network (PPFN) is a network of funding facilities and institutions dedicated to developing sustainable infrastructure in Africa through improving project preparation, working to increase the number of viable, well-prepared, investment-ready infrastructure projects.

Investors' appetite for PPPs

What funding and financing is available?

Project preparation → Project implementation

Project preparation (upstream funding/ financing)

- **Currently not enough funds available for PPP project preparation.** Few investors are willing to invest in lengthy preparation processes with uncertain outcomes
- Only 10% of infrastructure projects in Africa make it to the financial close stage
- Most of the funds directed to preparation focused on the energy sector (mitigation)

Project implementation (downstream financing)

- **High demand for well-structured projects from financiers and other investors**
- However, limited deal flow as a consequence of limited public resources for availability-based PPPs and limited suitable revenue-based PPPs (ports/ energy being the exemptions)

Infrastructure Finance Modes

Debt

- Lenders provide capital which the borrower is obliged to return on a fixed repayment schedule and with a fixed interest obligation.
- Common debt instruments are:
    - Bonds – e.g. Project Bonds, Municipal, sub-sovereign bonds, Green Bonds
    - Loans – e.g. Direct/Co-investment lending to infrastructure project, & syndicated project loans

Equity

- Investors provide capital in return for ownership interest, resulting in decision making rights and and dividends if profits are sufficient.
- The higher risk profile of equity compared to debt results in higher return expectations.

Hybrid instruments

- These are mostly debt instruments but that can have both debt and equity characteristics, for example subordinated loans (lower in priority than ordinary debt, resulting in a higher risk profile and higher expected returns).

Funding Sources

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User charges

Also known as user payments, such as toll charges on toll roads

New development charge

This is a fee imposed by government on a new development project to pay for public infrastructure PPPs that may not have a clear revenue-generating component

Land value capture

Capturing the increase in land value, either through proceeds from direct development, property tax proceeds or government payments in lieu of tax revenues

Availability payments

Performance based payments from the government to the project company

Taxes

Real estate transfer tax – a tax imposed on those transferring real property within a jurisdiction
Sales Tax – a consumption tax imposed by the government on the sale of goods and services
Property tax – property taxes reflect the value of the underlying asset. Investment and climate resilience will increase the asset value and therefore property tax

Factors impacting resource mobilisation

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A government committed to infrastructure development and the PPP pipeline

A stable and conducive legal/ regulatory framework for PPPs

For downstream resources, a high-quality feasibility study and well-elaborated business plan

High perceived risk of PPPs in Africa

Absence of long-term planning, incomplete feasibility studies and business plans

Climate resilience is associated with extra costs (and not extra revenue potential, yet)

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Climate finance landscape in Africa

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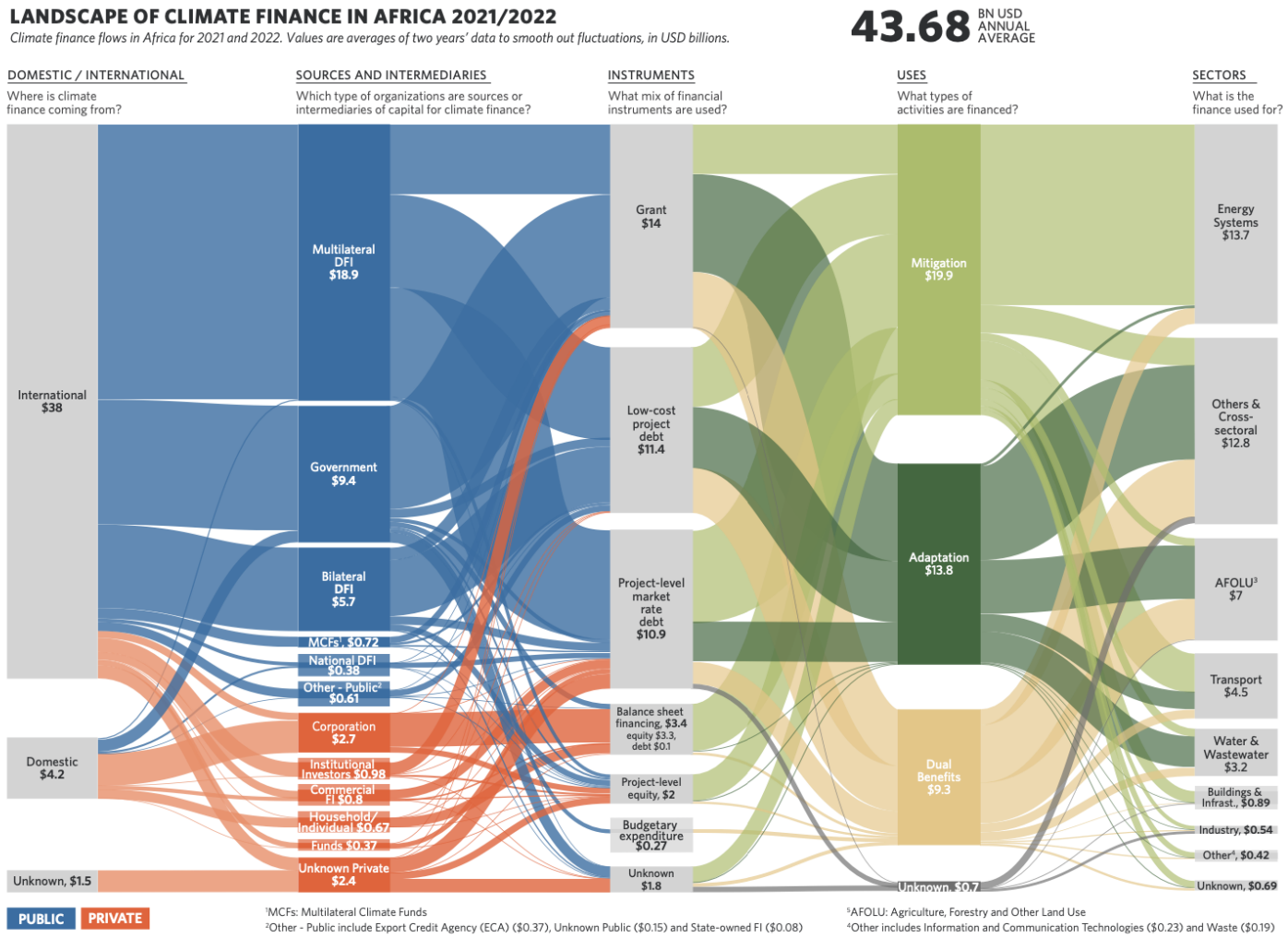
- Total climate finance has steadily increased over the last decade, reaching USD 1,062 billion in 2021/2022.
- Of this, Africa received only USD 30 billion. This rose 48% to USD 43.7 billion in 2021/22. However, the funding gap is still glaring.
- The share of adaptation investment in Africa's overall climate finance flows remains higher than in other regions. Adaptation solutions received 32% of Africa's total while the share elsewhere ranged between 1% and 14%.
- Multilateral DFIs, governments and bilateral DFIs are by far the largest investors, but private finance doubled between 2020 and 2022.

Africa Climate Finance Flows , 2021/ 2022 (USD billion)



Source: Landscape of Climate Finance in Africa 2024- CPI (climatepolicyinitiative.org)

The role of climate finance in African infrastructure development

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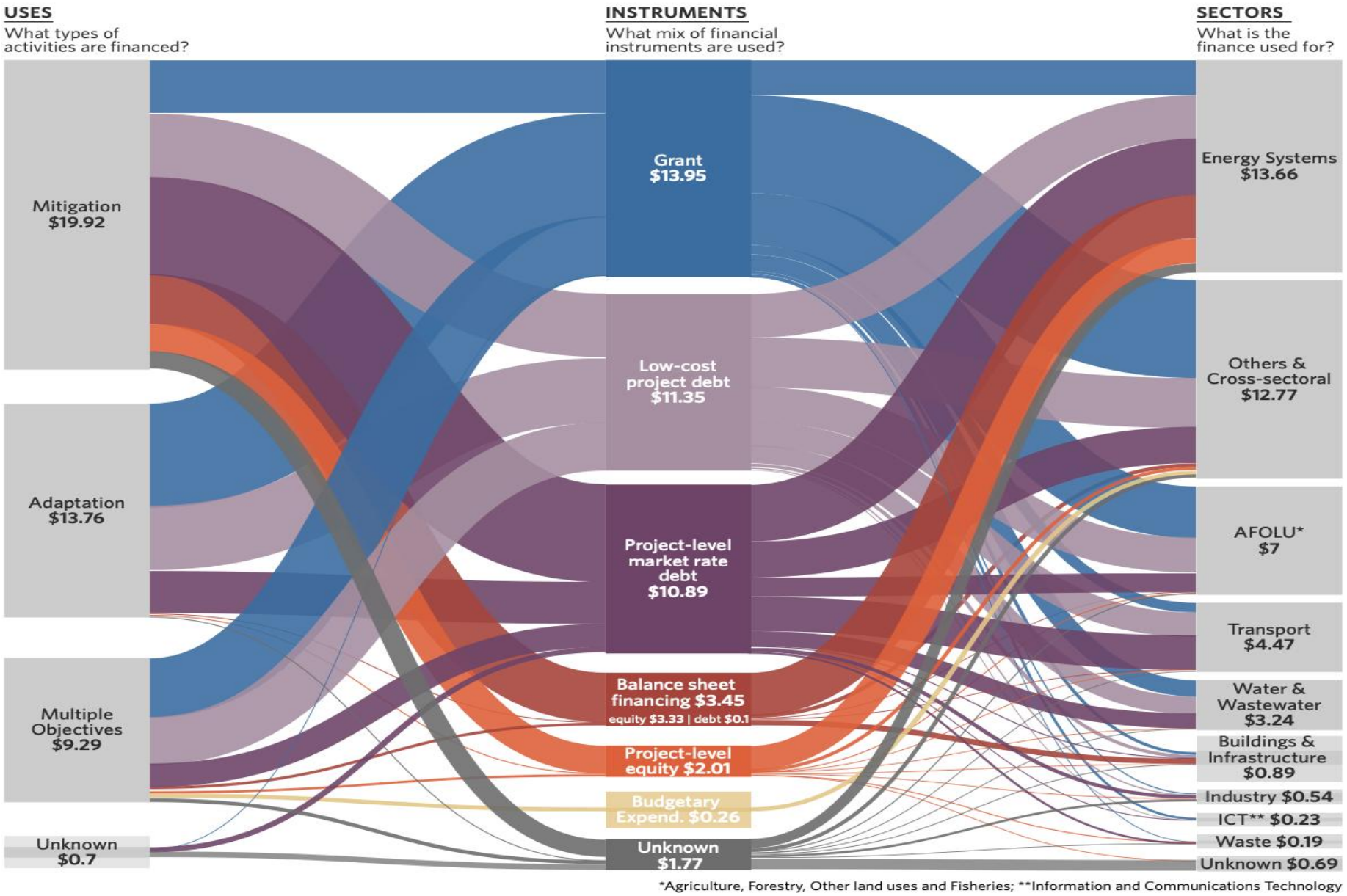

Source: Landscape of Climate Finance in Africa 2024 - CPI (climatepolicyinitiative.org)

Climate finance: where does it come from and where does it go?

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- In Africa, the ratio of public to private finance is the highest in the world, at 4-to-1, twice as high as the next highest region (East Asia and the Pacific).
- DFIs are predominantly the ones investing on project level (total project-level market rate debt USD 19 billion in 2022).
- The over-representation of public financing (governments, DFIs and state public services) in climate funding streams reveals a lack of private investment in Africa
- Adaptation makes up a higher proportion of climate finance in Africa then elsewhere, and this is on the rise. Adaptation finance increased by almost 53% in the last two years compared to the previous two

4 : 1

The ratio of public to private climate finance in Africa

Source: Landscape of Climate Finance in Africa 2024 - CPI (climatepolicyinitiative.org)

Funding and financing for PPPs

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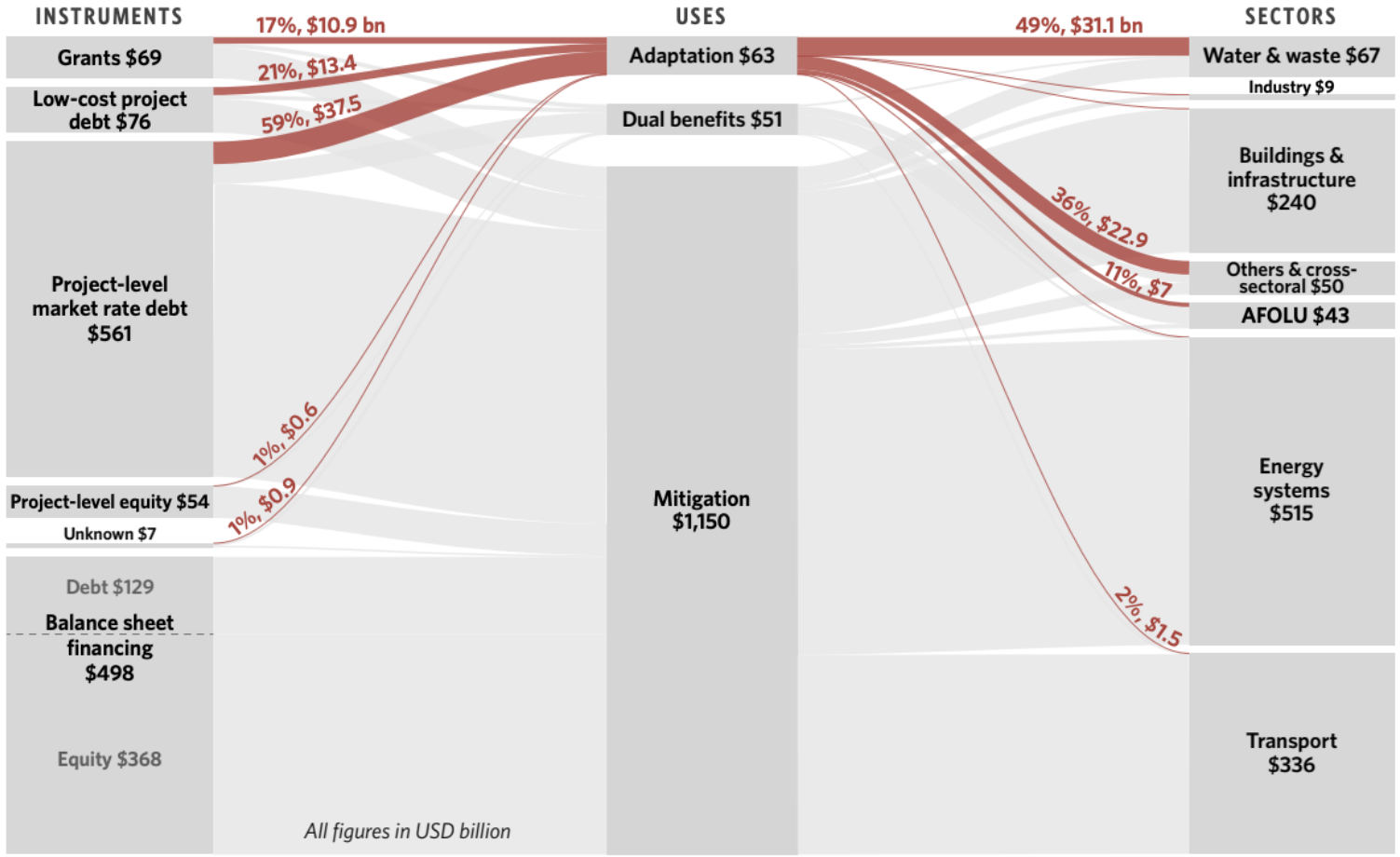
Recommendations for practitioners and policy-makers

Global climate finance for adaptation

- Adaptation finance reached USD 63 billion in 2021/2022.
- Tracked adaptation finance remains dominated by public actors – making up 98%. Of this DFIs make up 86%.
- Barriers to scaling up this finance include building project pipelines, screening projects for adaptation benefits (e.g., standardizing metrics to categorize projects as adaptation), and climate-proofing investments (e.g., large-scale infrastructure projects).
- Well-designed projects are therefore well placed to capitalise on adaptation finance.

Adaptation Finance Flows , 2021/ 2022 (USD billion)



Source: Global Landscape of Climate Finance 2023 - CPI (climatepolicyinitiative.org)

Climate resilience in relation to investors' appetite

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Making contracts resilient to climate change impact is crucial for resource mobilisation.

- Relief and Compensation Events: add list of climate risks the PPP asset is exposed to and qualify as relief or compensation events
- Force Majeure (FM) Events: add itemized list of catch-all provisions to capture climate risks under FM
- Uninsurable Events/ insurance: limited access to commercial insurances in Africa increases risk profile and dissuades investors – transfer risk or insure with development partners. Increase public ability and capacity to enforce a disciplined approach to risk management
- Provision of change of law around climate resilience (e.g. construction regulations): protects private investors from the consequences of certain changes ex-post bid award
- Limit broad clauses on variations and renegotiations: these create uncertainty for future climate events

Increased global concern about climate change is positively shaping resource mobilisation environment.

- Regulations for banks – and (internal) policies of investors, lead to emphasis on climate investments

Defining the ‘green’ in green financial instruments

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A green taxonomy is a classification system that highlights which investment options are sustainable and, by extension, those that aren’t.

For example, the EU taxonomy has conditions for construction investments to be considered ‘green’:

New buildings: At least 90% of the non-hazardous construction and demolition waste (CDW) is reused or recycled, including backfilling that substitute’s primary materials.

Renovations: At least 70% of the non-hazardous construction and demolition waste (CDW) is reused or recycled, including backfilling that substitute’s primary materials.

As of May 2024, two African countries have national green taxonomies:

South Africa

The first African country to establish a green finance taxonomy in 2022. South Africa’s taxonomy is science-based and follows European Union best practices.

Rwanda

Launched its green taxonomy at COP28. Rwanda’s taxonomy is modelled on the Colombian, EU, and South African taxonomies.

Innovative funding and financing mechanisms

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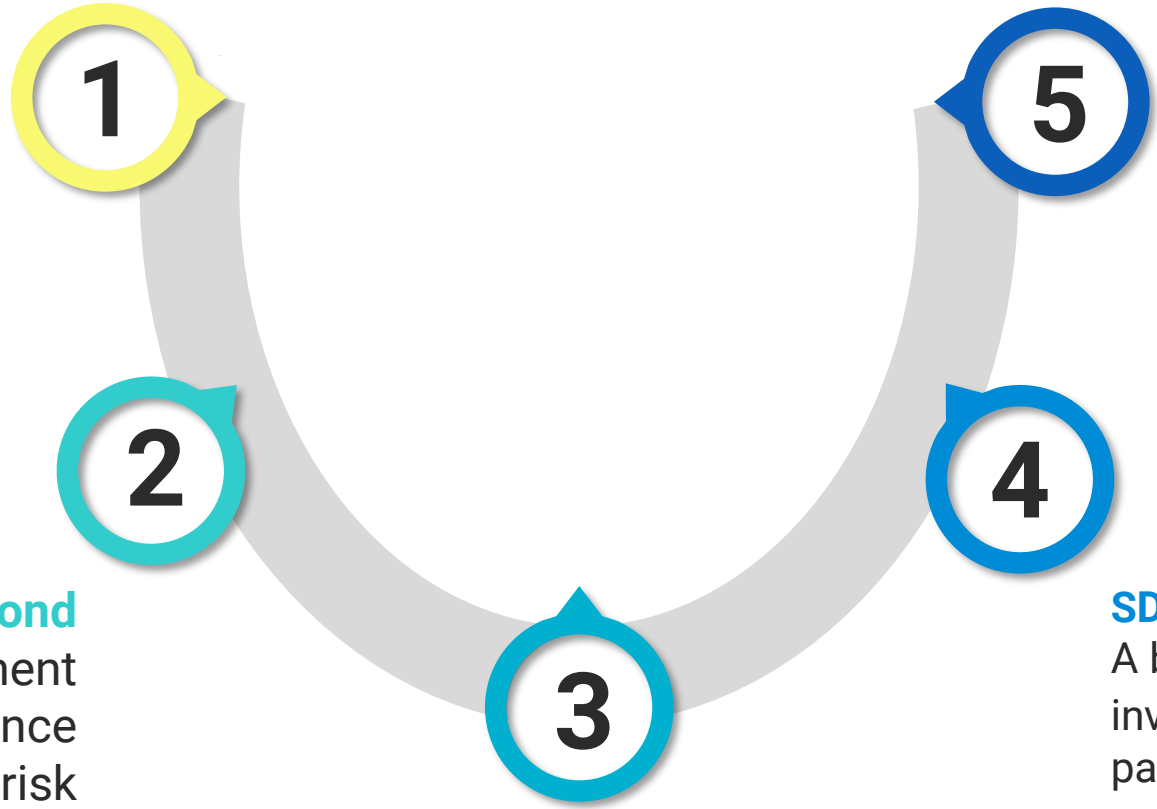
Resilience grant
A grant given by a multilateral bank or specialized fund for the purpose of improving resilience. These grants are tied to quality criteria that an investment must meet



Resilience bond
A specialized instrument that uses a 'resilience rebate' to fund risk reducing investments

Green bond
A debt security issued to raise capital specifically for environmental or climate-related projects

Environmental impact bond
These provide up-front capital to environmental projects to pilot new approaches or to scale-up tested approaches, where the payment mechanisms is called 'pay for success'

SDG bond
A bond linked to the SDGs, where investors receive a coupon payment based on the issuer's performance against criteria in the SDGs

Innovative financing part 2

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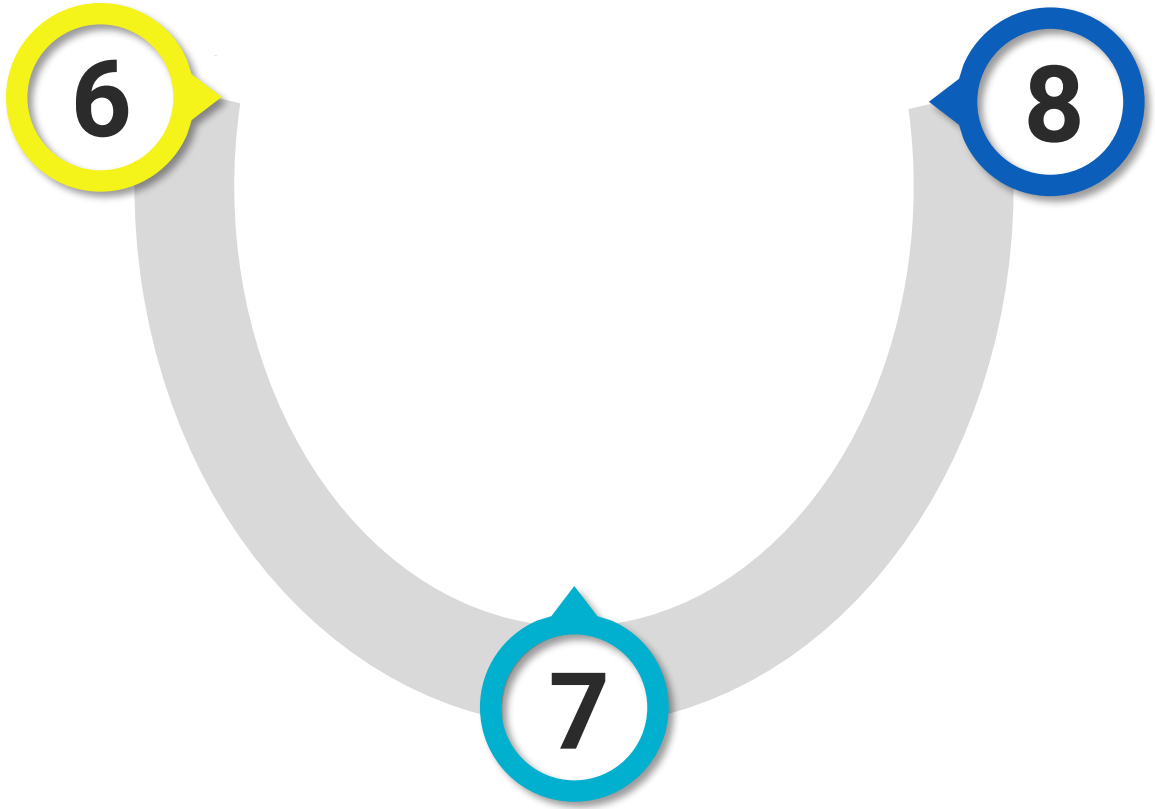
Aggregation
This allows for the bundling of several smaller-scale projects into an investment vehicle, which could then be (re)financed in the capital market through bonds and sale of equity shares



Tax increment financing
This is used to finance development projects or other investments using the anticipation of future tax revenue resulting from new development.

Securitization
Here a bundle of small projects becomes tradable in the market as asset-backed securities, which would then attract investors

Climate risk mitigation instruments.

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Insurance premium
These reflect the risk profile. Investment in climate resilience will reduce the risk profile and allow for the reduction of insurance premiums

Weather index insurance
An index insurance which pays out based on an index, in this case from adverse, measurable weather conditions. It thereby protects against the potential financial loss resulting from stated indices

Regional catastrophe risk pool
A group of governmental entities joining together through written agreement to fund an exposure or risk, so that when the risk occurs, participants can more swiftly access financial resources

Catastrophe bond
An instrument that provides good rates of return to investors to compensate for the risk of a triggering event

Public financing & funding considerations for resilience

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Integrate climate resilience upstream

Tie public financing more readily to resilient principles for all projects (PPP & non-PPP)

Weight resilience in the bid evaluation criteria as high or more highly than cost

This would force prospective private partners to develop innovative solutions, more climate-resilient than what would have been done initially

Public partners to enforce resilience more strictly as a key criterion for all infrastructure projects

This is because governments are typically the party to which climate risk is allocated

Govts to integrate the additional costs required for climate-resilient infrastructure in their budgets

Work jointly with private parties to lower these costs in the near future.

Public financing & funding considerations for resilience

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Achieve VfM

Public partner assesses the value of undertaking a project using a conventional procurement method versus PPP procurement

Achieved when the whole life costs and quality are optimised when providing public goods and services
(not always the lowest cost)

Private investors consider the design life instead of the financial life of an asset

This provides the lenders with a clearer understanding of the benefits of climate-resilient infrastructure over the long term

Private investors could leverage this consideration to charge a risk premium

Align infrastructure financing timespans with the full project lifecycle

Other contractual considerations

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Factor climate considerations into contractor reporting

E.g. indicators for green finance, which are typically tied to specific climate resilient standards

Green Climate Fund (GCF) outlines clear indicators for the impact potential of mitigation and adaptation projects before funding developing countries

Factor Environmental, Social & Governance (ESG) considerations into contractor reporting

This is because of the increasing regulatory pressures and demands from investors promoting the incorporation of ESG in investments

ESG standards from lenders and organizations to be aligned to facilitate the due diligence process

Embedding sustainable investment and considering the full spectrum of ESG has risen to the top of the regulatory agenda

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Financing nature-based solutions

Recommendations for practitioners and policy-makers

NbS financing plays a crucial role in adaptation and investments deliver multi-dimensional benefits

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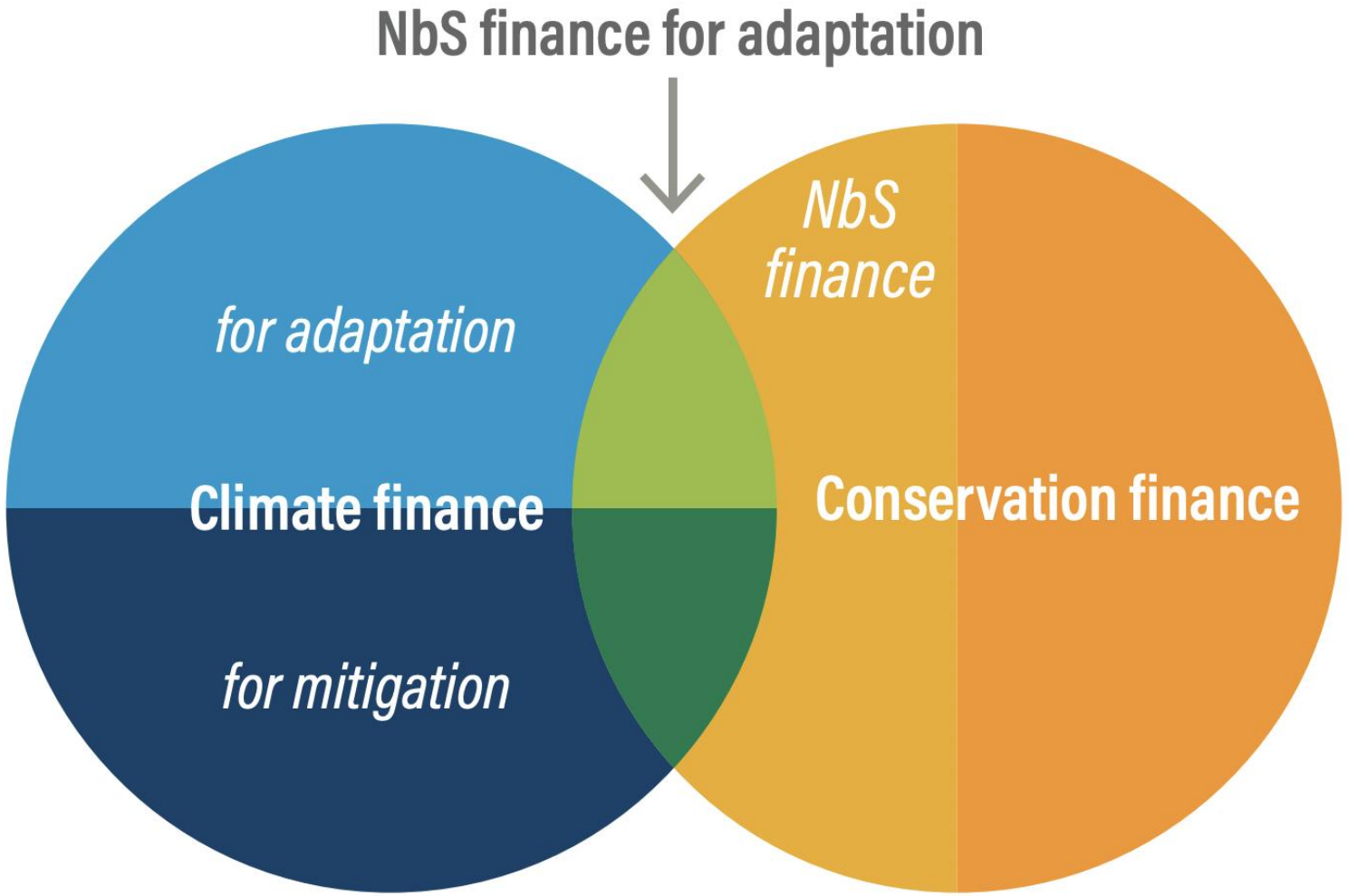

Financing nature-based solutions

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Example of NBS	Example of revenue and cost benefits
Green buildings. For example, green roofs and walls • system that uses vegetation as the surface of the roof/wall covering instead of artificial materials	*Costs:* Reduced heating/ cooling by improving the thermal properties of the roof, increased lifespan of the waterproof, increased insulation, decreased damage of exterior from weather
Green water management. For example, ecosystem-based rainwater collection and water re-use systems using plants and other components of ecosystem as natural filters	*Revenue:* Sale of water or water rights *Costs:* Reduced water purchases, reduced impacts of storm run-off and flooding and reduced need for chemical inputs into water systems
Natural hazard protection. For example, restoring, modifying or using natural landscapes to reduce or mitigate the impacts of flooding	*Revenue: P*ayments for ecosystem services *Costs:* Reduced need for artificial flood defences, reduced impact of natural hazards and removal costs of sediment

Source: Financing Nature- Based Solutions for Adaptation at Scale GCA (2023) Learning from Specialised Investment Managers and Nature Funds

Financing nature-based solutions

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Nature Based Solutions ("NbS") are "actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits" (UNEP, 2022)

Public and private finance flows to NbS in 2022, $ billion (2023 US$)

Source: UNEP (2023) State of Finance for Nature: The Big Nature Turnaround – Repurposing $7 trillion to combat nature loss. Nairobi.

Different types of financial instruments are used to fund and finance NbS

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Grant-based

Grant

Redeemable Grant

Debt-based

Private loans

Mezzanine loans

Concessional loans

Private notes

Social bonds

Sustainability -linked bonds

Green bonds

Sustainability bonds

Blue bond

Equity-based

Private equity

Public equity

ESG ETFs

Derivative - based

Carbon credits

Other

Nature-based credits

Debt for nature swaps

Adaptation Benefits Mechanism

Development Policy Lending

Project preparation facility

Funding NbS for Infrastructure

Project Goal

Slope stabilization

Core Financing Needs

Initial capital outlay for purchase, installation and/or construction of infrastructure

Financing Type

Grant-based

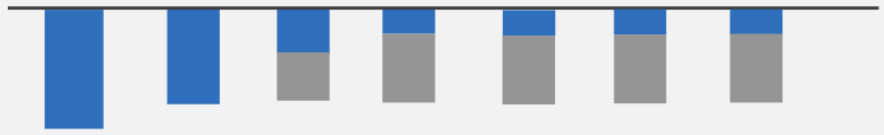
Debt-based

Revenue and Cost Benefits

- **Payment for Ecosystem Services**

- **Reduced risk of erosion**
- **Reduced risk of landslides**
- **Reduced risk of costly repairs and downtimes**
- **Avoiding costs associated with**
- **disaster response, emergency repairs, and potential legal liabilities from accidents due to unstable slopes**

Cash flow pattern over time



NBS Finance case study: Climate Investor 2

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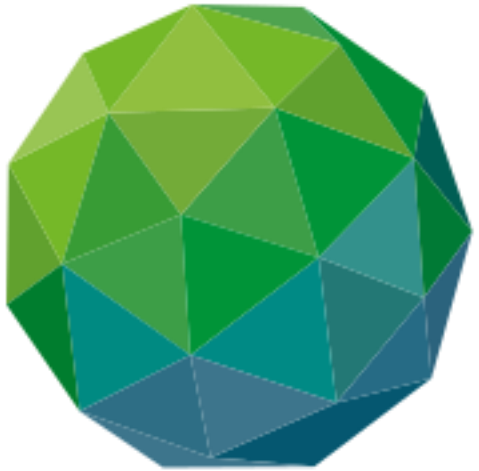
CI2 is made up of three funds, targeting different project stages:

- Development Fund (US$90mln target size): Funds up to 50% of the planning and development phase of a project with the ability to provide both technical assistance and financing.
- Construction Equity Fund (US$1bn target size): Funds the construction phase of a project, financing up to 75% of the construction funding requirement through equity, thereby eliminating the traditional need for debt during construction.
- Refinancing Fund (US$1bn target size | Yet to be established): Operates as a post-construction debt facility providing long-term senior debt to projects once fully operational.



GREEN CLIMATE FUND

Source: Financing Nature- Based Solutions for Adaptation at Scale GCA (2023) Learning from Specialised Investment Managers and Nature Funds

NBS Finance case study: Climate Investor 2

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CI2 has invested in Xylo Group, a biomass-to-energy project developer with a pipeline of opportunities to generate renewable energy to the corporate and industrial market in Uganda, Tanzania and Zambia.

The Jinja Combined Heat and Power (CHP) Project is the first of these projects and will use woody biomass to produce green thermal (steam) and electric energy for the Nile Breweries (AB InBev) brewery in Jinja.

Annual avoided GHG emissions (tCO2eq/year): Estimated at 48,975 tCO2e/year

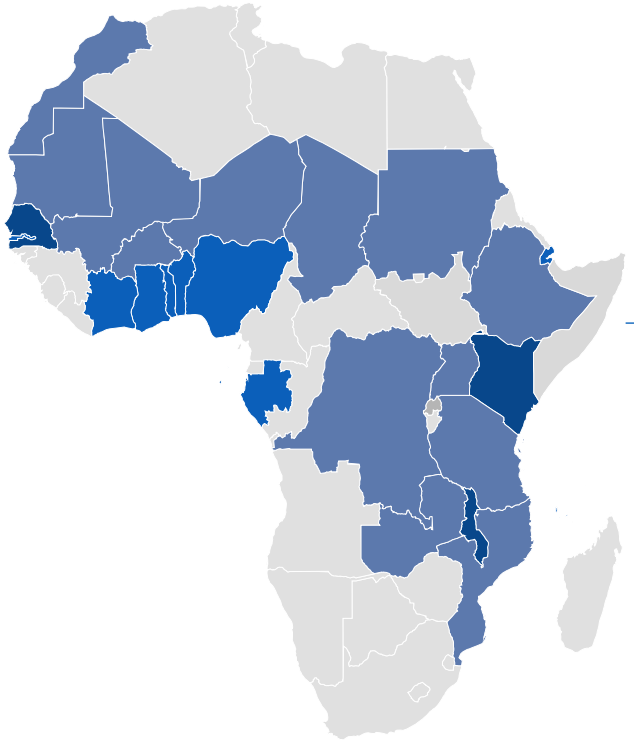
Total installed capacity (MW): 11MW thermal, of which 3MW will be electrical supply, and the remainder used for steam generation.

Total renewable energy generated (GWh/year): 15 GWh/year

Source: Climate Fund Managers, Xylo Jinja

GCA's Infrastructure and NBS program

STRATEGY	**Influence large-scale investment projects and pipelines**, by identifying and prioritizing viable green and grey adaptation and resilience options that **reduce climate change impacts to assets, services, and served communities.**



Activities structured across 3 pillars :

1. Climate Resilient Infrastructure assets
2. **National Adaptation Pathways for Infrastructure**
3. **Climate-responsive Public Private Partnerships**

→ Collaborating with **Multilateral Development Banks**, **International Financial Institutions** and **Governments**.

→ Deployed under the **Africa Adaptation Acceleration Program (AAAP).**

→ Program working in **24 countries** to date, influencing up to **$6.1 billion infrastructure investments**.

NbS options appraisal: Economic analysis

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Cost-benefit analysis:

The analysis can help to predict whether the benefits of an option outweigh its costs and in relation to other alternatives

Multi-criteria analysis:

Considers indirect adaptation (co-)benefits through a quantitative or qualitative evaluation of:

-benefits to socio-economic indicators (e.g. GDP, trade)

-alignment with national and local policy documents and policy objectives

-potential to enhance resilience of vulnerable communities (e.g. through access to resources and service)

The investment case for adaptation solutions, including NbS, rests on whether the net-economic and financial return of the investment (including co-benefits) justifies the cost of implementation.

Banjul Port 4th Expansion (AfDB)

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Objective

Improve trade flows for The Gambia by increasing the port's efficiency, modernizing and expanding facilities, providing a digital strategy for streamlined operations, and implementing a maintenance strategy and tariff adjustments to optimize revenue

Financing mechanism

- ADF grant of $13.71 million
- $6.85 million grant from the Transition Support Facility window.
- $450,000 grant for technical assistance
- $ 98.64 million in private financing

Grant

Technical assistance

Private financing

Expected Outcomes

3 km of resilient roads or rail built or rehabilitated

6,019 direct and indirect beneficiaries

20 indirect jobs created

30 officials trained to integrate adaptation into projects

GCA's Contributions

- Stress testing port assets and services against robust, data-driven climate hazard scenarios
- Identified 20 adaptation options (physical, social and institutional measures) to address climate risks
- **Quantifying the role and value of existing natural assets, including the Tanbi Wetland complex in protecting port assets and services**
- Adaptation investment plan requiring $10.3 million (9% of the port upgrade costs) to reduce estimated damages of $27 million over the next 30 years and avoid 3% annual revenue losses in port operations.

Source: GCA. Adapted and enhanced by author with data from: Gambia - Banjul Port 4Th Expansion Project - Project Appraisal Report | African Development Bank Group (afdb.org)

Abidjan – Lagos Corridor (AfDB)

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Objective

The Abidjan – Lagos Corridor interconnects the capital cities of five western African states (Côte d'Ivoire, Ghana, Togo, Benin and Nigeria), covering approx.1,028 km and eight border crossings. The project aims to create an economic corridor that facilitates trade and transport flows between the main activity centers of the ECOWAS region.

Expected Outcomes

Technical assistance

- Support access to finance for adaptation and resilience measures, by identifying and providing cost-benefits analysis at scale of green and grey adaptation and resilience measures along the corridor.
- Support ECOWAS and ALCoMA in the development of climate-informed PPP frameworks and operating standards along the corridor.

GCA's Contributions

- High resolution climate risks modeling for entire Abidjan-Lagos Road corridor.
- Quantification of direct and indirect impacts of climate hazards on assets, transport services.
- Guidelines to support the allocation of climate risks between the public and private partners.
- **Identification of large-scale adaptation and resilience options along the corridor, especially nature-based (erosion control, natural hazard protection)**

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Manage financial risks from climate for investors by incorporating long-term resilience in infrastructure projects

Appeal to investors by emphasizing climate relevancy of the PPP

Set up project preparation facilities to create more well-developed investment opportunities for climate resilient PPPs

Use DFI assistance to enable investments in the upstream phase of project preparation and in managing the risks in the implementation

Source: PPIAF Climate Resilience Issue Brief

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