



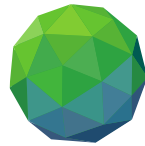
**Global Workshop on
Water, Agriculture and Climate Change**
17-18 October 2022, Geneva and online

The Role of GCF in Water Security: Transboundary Lens

Dr Amgad Elmahdi

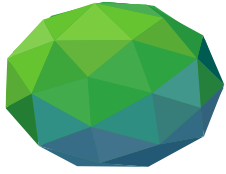
Water Sector Lead

S.Korea / Green Climate Fund- GCF

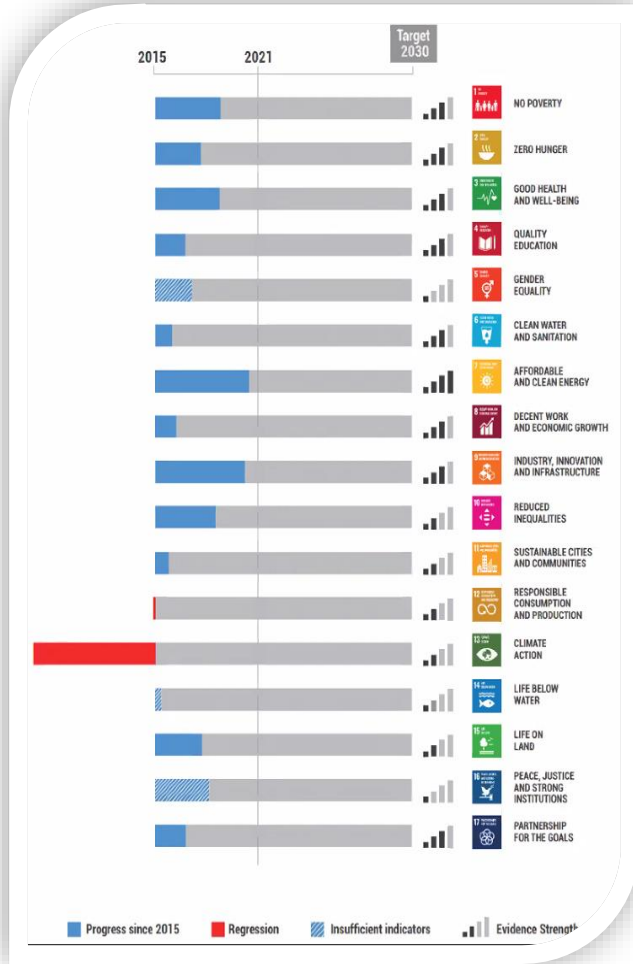


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A systemic crisis requires a Systemic approach!!!

We need to Act Fast :Financial Need!

Achieving universal and equitable access to safe and affordable drinking water will cost



USD 1.7 tn

Hutton et al (2016)

USD 22.6 tn

USD 6.7 tn

Estimated financial needs for water infrastructure

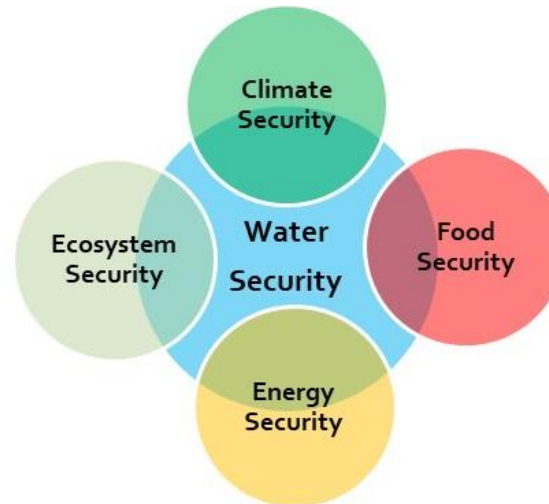
Winpenny (2015)



Water Sector is the Connector!!

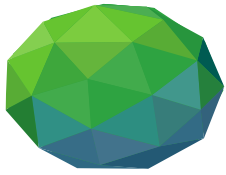


We only have 8 Years to harvest

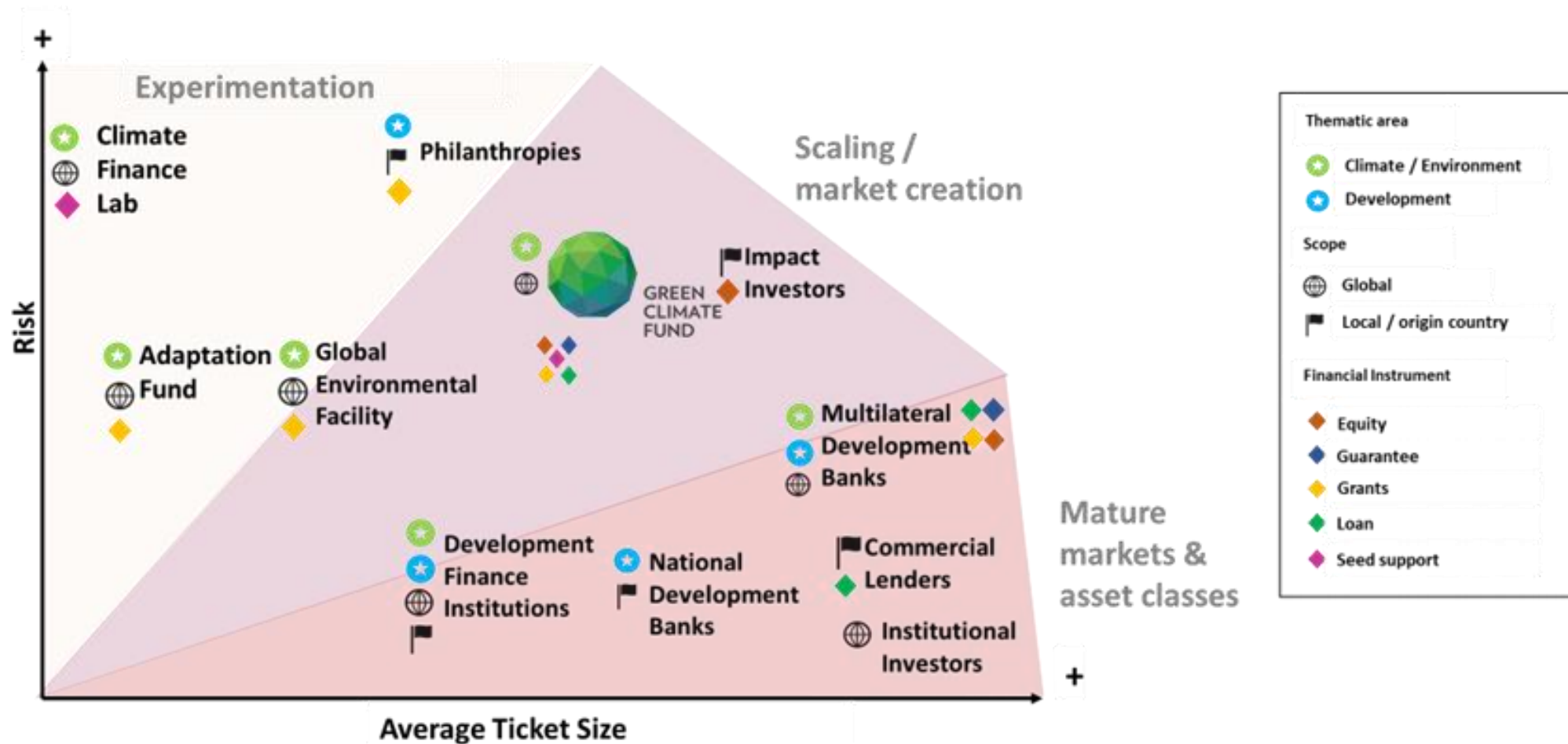


Achieving SDG WASH targets by 2030 will require a quadrupling of current rates of progress (WMO & UNICEF, 2021)

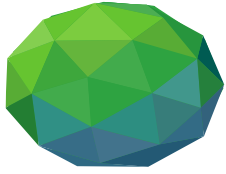
GCF in the Climate Finance Landscape and Potential Collaborators



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GCF: scaling transformational solutions and market-creation role, and as accelerator and amplifier for climate action



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Barriers to financing projects

Lack of integrated development planning and capacities that consider *maladaptation risks and investment needs* across the *NEXUS sectors, climate information services and supply*;

Limited investment in innovative farming practices, agricultural technologies and business models to *incentivize stakeholders to adapt*;

Lack of access to affordable finance to *invest in low-emission agricultural practices, regenerative businesses and sustainable food systems*;

Inadequate public and private finance to invest in *commercially viable climate-resilient projects and programs at scale*;

Lack of knowledge and access to information on resilient and low-emission *Nexus practices and related benefits*;

Lack of awareness of low-emissions Nexus practices, use of modern *ICT tools and techniques for climate resilient Nexus systems*.

Cultural and behavioral barriers in *changing food production systems and diets*.

Under-pricing of water: Water is a **public good** and generally an under-valued resource, **not properly accounted** for by the government and the investors that depend on or affect its availability in other sectors such as urban development, agriculture, and energy.

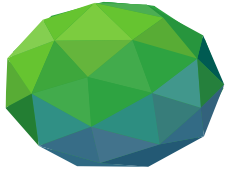
Water services are often under-priced, resulting in low cost-recovery for water investments.

Capital-intensive Water resources, irrigation, water supply, and wastewater **infrastructures are generally capital intensive, with high sunk costs and long pay-back periods.**

Monetising benefits: Water management provides both public and private co-benefits, many of which cannot be easily monetised. This reduces potential revenue flows.

Context-specific projects: Water projects are often too small or too context-specific, raising transaction costs and making innovative financing models difficult to scale-up.

Poor business models: Business models often fail to support O&M efficiency, hampering the ability to sustain service at least cost over time.



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GCF : Investment criteria for Water Security Sector



01

The world's largest climate fund



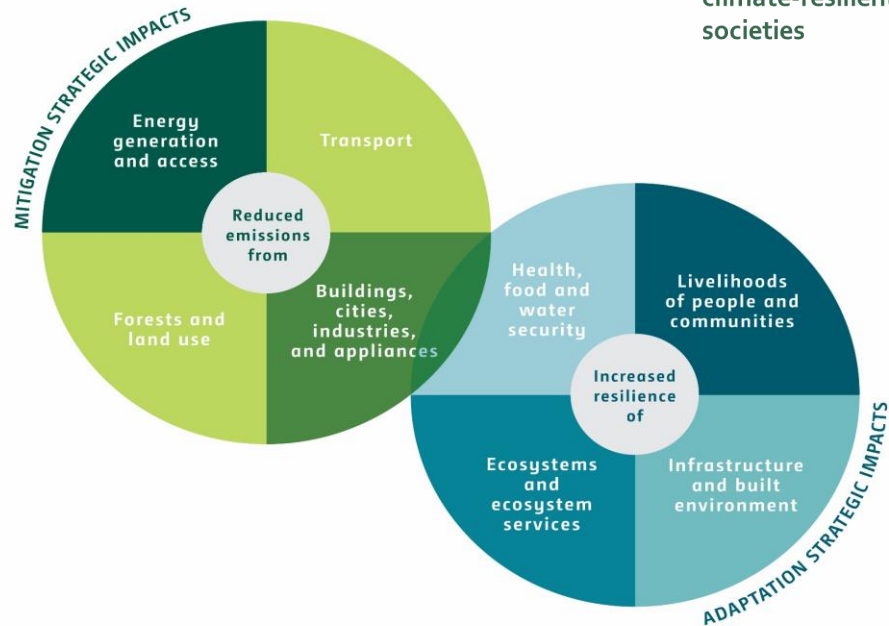
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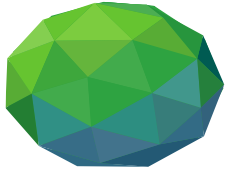
Set up by the UNFCCC, and serving the Paris Agreement



03

Supporting developing countries to transition to low-emission, climate-resilient societies





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How we drive change

01

Transformational
planning



02

Catalyzing
innovation



03

Mobilizing
finance



04

Coalition and
Knowledge to
Scale-up Success

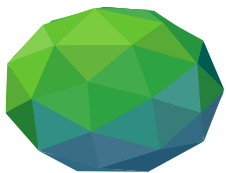


Integrated **climate** development **policies** promoting **climate finance** coherence. Strengthen transboundary operation and cooperation including fostering transboundary dialogue and enabling frameworks

Technology development and **transfer** with **enabling institutional environments**, including conservation, preservation, sanitation asset class, EbM, and smart utilities

scaling-up successful **climate investments** to **de-risk investments** through strengthening domestic capital markets, increase collaboration with climate financing institutions

creating and sharing knowledge to harmonise valuation methodologies or sustainable development. Improve access to public data and promote partnerships and new alliances



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GOAL STATEMENT- Water Security

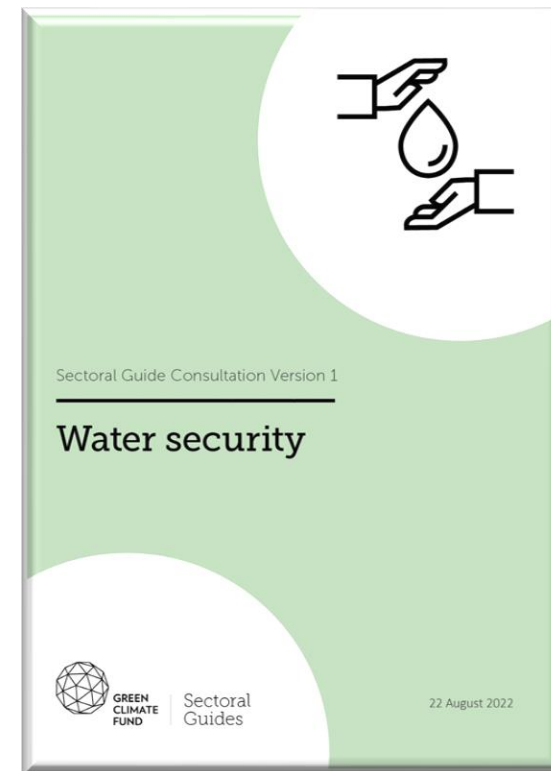
IF the GCF creates an **enabling investment environment** to *identify, design and implement* public and private funded **transformational water security interventions** as a new asset class,

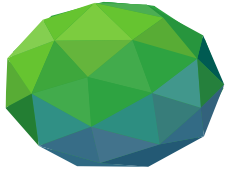
THEN recipient countries can *mitigate and adapt* to climate change through: (i) **water conservation**; and (ii) **preservation** of water,

BECAUSE an increasing share of **investment in water security** will be catalyzed to **deliver systemic change and maximize impact** across the GCF four drivers of change.

A Paradigm Shift in Water Security is achieved by scaling-up **climate smart water conservation** interventions in demand management, water efficiency and water re-use

A Paradigm Shift in Water Security is achieved by scaling-up water security interventions supporting **integrated water resources management**, alternative water sources and water related-hazards





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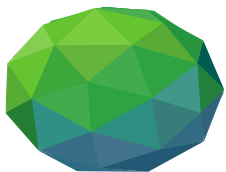
Paradigm Shifting Pathways WATER SECURITY: SDG6 meets SDG 13

Pathway 1: Enhance water conservation, water efficiency and water reuse (Mostly Mitigation)

	<h3>Demand Management</h3> <ul style="list-style-type: none"> • Reduces energy & emissions from treating less water and developing alternative water supplies, • Reducing non-revenue water losses • Promoting water saving fixtures • Water re-use systems for irrigation 		<h3>Smart-Digital water Management</h3> <ul style="list-style-type: none"> • Enhances efficiency of water management, • Smart water meters for monitoring daily water consumption and real-time leak detection • Automated irrigation
	<h3>Decentralized models</h3> <ul style="list-style-type: none"> • Large-scale water re-use / water recycling models can be tailored to meet the water quality requirements of a planned use: • Agricultural irrigation • Replenishing groundwater basins (MAR) 		<h3>Resource Recovery</h3> <ul style="list-style-type: none"> • From wastewater: Biogas from anaerobic digestion and thermal conversion of biosolids • Treatment plants also provide opportunities for solar PV, floating solar, wind etc.

Pathway 2: Strengthen integrated water resources management – protection from water-related disasters, preserve water resources and enhanced resilient water supply and sanitation (Mostly Adaptation)

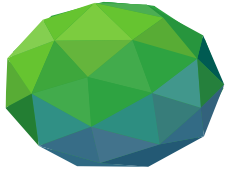
	<h3>Ecosystem-based Management (EbM)</h3> <ul style="list-style-type: none"> • Reduce flooding impacts • Mitigate droughts • Improve water quality 		<h3>Alternative water sources</h3> <ul style="list-style-type: none"> • Water re-use systems can utilize greywater, blackwater, rainwater harvesting, and stormwater harvesting for non-potable uses, including Cooling buildings, irrigating landscapes, and flushing toilets
<h3>Integrated Water Resources Management (IWRM)</h3> <ul style="list-style-type: none"> • coordinated development and management of water, land and related resources to maximize sustainable development • involves preserving water in the water cycle using circular economy-thinking, e.g., water efficiency in agriculture • Involves adaptive planning across land and water to ensure water security for both humans and nature in a changing climate 			



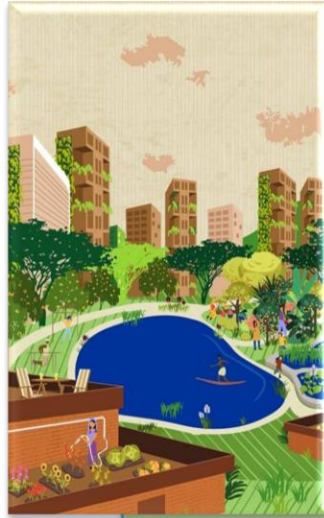
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Paradigm Shifting Pathways Water SECURITY

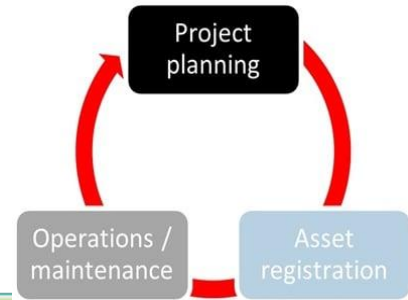
Sector		Actions across the drivers of the GCF Strategic Plan			
Water security		Transformational planning & programming	Catalyzing climate Innovation	Mobilization of finance at scale	Coalitions & knowledge to scale up success
Paradigm shifting pathway	Enhancing water conservation, water efficiency, and water re-use	<ul style="list-style-type: none"> Encourage benchmarking across service sectors and providers Incentivise circular economy approaches for resources recovery Design low emission climate resilient investment pathways that maximise long term water benefits Strengthen water security into NDCs and NAPs 	<ul style="list-style-type: none"> Mainstream climate smart water and agriculture using digital solutions Promoting new asset classes in sanitation and water re-use that follow these characteristic in finance, revenue stream, SDGs and Paris agreement Reduce performance uncertainty through asset management Advocate decentralised water supply and wastewater management Support desalination using renewable energy Employ data science and initiate "big data" solutions, such as reducing CO2 emissions 	<ul style="list-style-type: none"> Allocate grant funding for technical assistance and capacity building Enable private sector participation by supporting credit enhancements and full cost recovery through direct and indirect charges Support comprehensive cost-benefit analyses with co-benefit from EbM Introduce tax initiatives to contain adverse environmental impact of activities Support carbon credits initiatives for revenue generation 	<ul style="list-style-type: none"> Improve available information and data acquisition through knowledge platforms Support peer-to-peer learning and regional exchanges of lessons learned and best practices Support catchment-based initiatives to promote water stewardship Empower communities into the decision-making process Foster cultural-specific communication with stakeholders Encourage behaviour change in water conservation practices
	Strengthen integrated water resources management – protection from water-related disasters, preserve water resources and enhanced resilient water supply and sanitation services	<ul style="list-style-type: none"> Link IWRM with water safety plans for long term adaptive planning to map climate hazards with risks and vulnerability Encourage transboundary water resource cooperative arrangements Support resilient planning and design processes dealing with uncertainties Improve flood modelling into disaster risk resilience assessment and drought rationale through climate vulnerability assessment Integrate social and gender sensitive dimensions into water security interventions 	<ul style="list-style-type: none"> Promote and implementing a well-managed mix and integration of the Grey-Green Infrastructure to enhance the adaptability and resilience of coastal and upstream communities Mainstream rainwater catchment harvesting and storage systems Promote stormwater harvesting (e.g., sponge cities, agriculture) Advocate for water re-use and water recycling as alternative water sources Strengthen resilient WASH programmes preventing maladaptation Introduce EbM to enhance climate resilience in water infrastructure and build coastal resilience Contribute to urban climate resilience for flood and land use management Reduce drought vulnerabilities through water re-use and recycling 	<ul style="list-style-type: none"> Catalyse public funds to scale-up blended finance Enhance projects' risk-return profile Address risks vs. perceived risks Improve creditworthiness through credit enhancements and de-risking Defer investment using resilient water solutions within the whole water cycle Expand micro-finance to support household level resilient water systems Initiate ecosystem-based insurance and disaster risk insurance and bonds Participate in specialised water and blue-green funds 	<ul style="list-style-type: none"> Enhance collaboration with independent institutions for Monitoring, Evaluation and Verification Promote partnerships and new alliances in water security Strengthen innovation climate hubs Develop localised accredited climate education programmes Invest in research to support evidence-based decision making



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Focus Areas



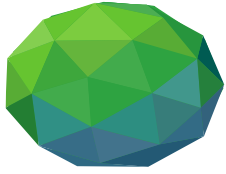
Integrated Grey-Green infrastructure

- Pilot and implement a ***well-managed mix and integration of the Grey-Green Infrastructure*** to **enhance** the ***adaptability and resilience of coastal and upstream communities*** to climate change (Drought and Flooding) and **mitigate** ***energy-intensive grey infrastructure*** including **increasing storage** of carbon through ***promoting, designing and financing resilient grey-natural water infrastructure projects*** that demonstrated ***improvements to water and climate risk resilience***
 - Support countries adapt ***policies and legislation*** to promote Grey-green resilient infrastructure within coastal and upstream communities and **take it to market** and private investors and
 - Support countries and AEs with ***innovative assessment tool and methodology*** for NBS hotspots and effectiveness
 - finance the transition to Grey-Green mix infrastructure and ***de-risk private investment*** in Grey-green resilient infrastructure,
 - ***Enhancing knowledge and Decision-making*** of ecosystem-based management, coastal management, rehabilitation of upstream catchment and its suitability to manage water related hazards mostly in urban areas (e.g., sponge cities and constructed wetlands vs. grey infrastructure) and
 - ***Piloting adaptation projects*** on flood and coastal protection and
 - ***Designing and Expanding blended finance for infrastructure adaptation projects*** on water hazard protection (reduce cost and improve efficiency) to effectively and equitably invest in water natural infrastructure.



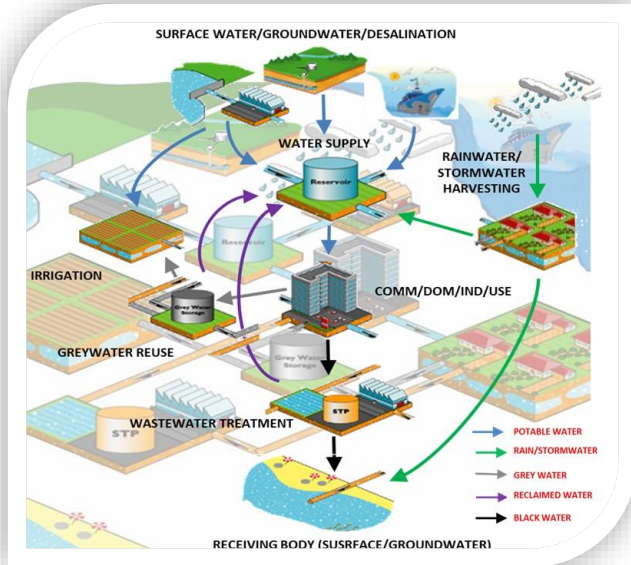
Water Asset Transition

- Treat water as ***"a new asset class"*** for water reuse and sanitation, using ***credit enhancement*** towards ***developing debt capital market*** and ***acceptable financial returns*** but remain in line with ***ESG impacts and the Paris Agreement and contribute to UN SDGs*** that will allow municipalities and private sector to **scale up** water reuse, sanitation and desalination projects and/or governments **purchase a service** instead of an asset.
 - ***support countries develop, adapt policies and legislation*** to create an enabling investment environment to identify, design, and implement public and private ***funded transformational water security interventions as a new asset class***
 - ***finance the transition*** and ***de-risk private*** investment in ***address financial market barriers and ensure affordability and bankability*** to unlock water reuse investment,
 - Supporting ***new financial models accompanied with acceptable revenue*** in line with Paris agreement targets and SDGs

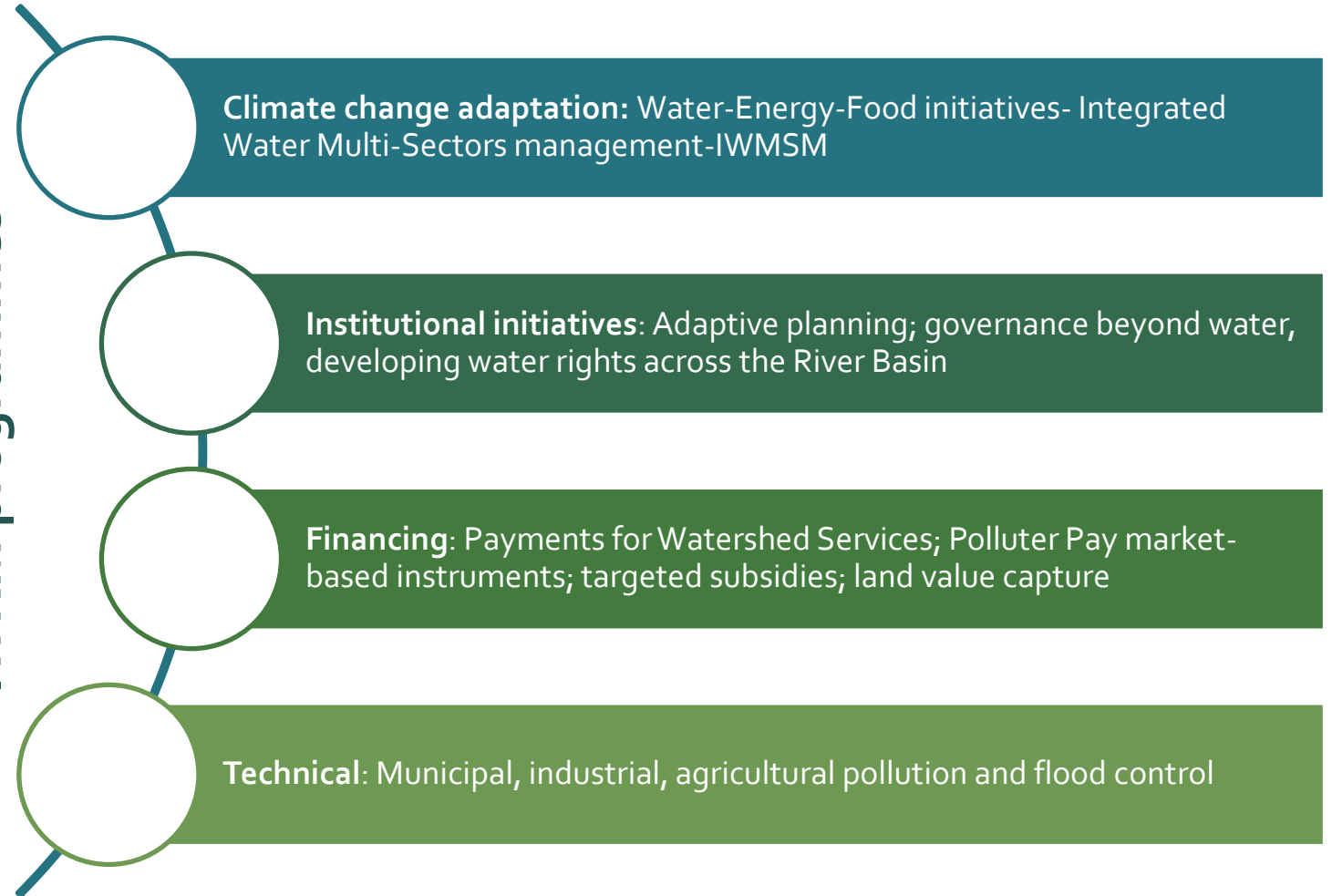


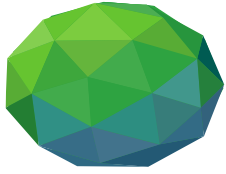
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POTENTIAL TRANSFORMATIVE WATER SECURITY PROJECT (PATHWAY 2)



Innovative River Basin IWRM programmes



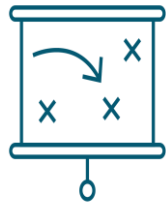


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FP092: PROGRAMME FOR INTEGRATED DEVELOPMENT AND ADAPTATION TO CLIMATE CHANGE IN THE NIGER BASIN (PIDACC/NB)

Background and GCF Support

- ❑ The Niger Basin of the Sahel is one of Africa's most vulnerable regions to climate change.
- ❑ Further exacerbating aridity due to increasing temperatures and reducing rainfalls 20-40%
- ❑ increasing fragility of ecosystems and reduced social resilience.



Promoting integrated strategies, planning and policymaking



Loans



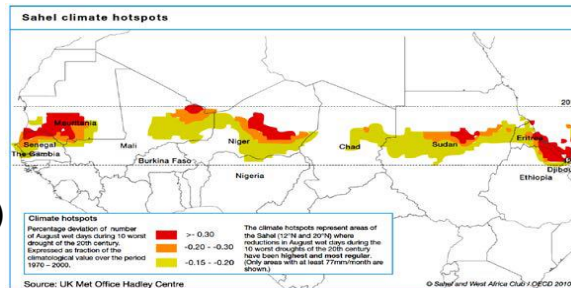
Grants



In-kind

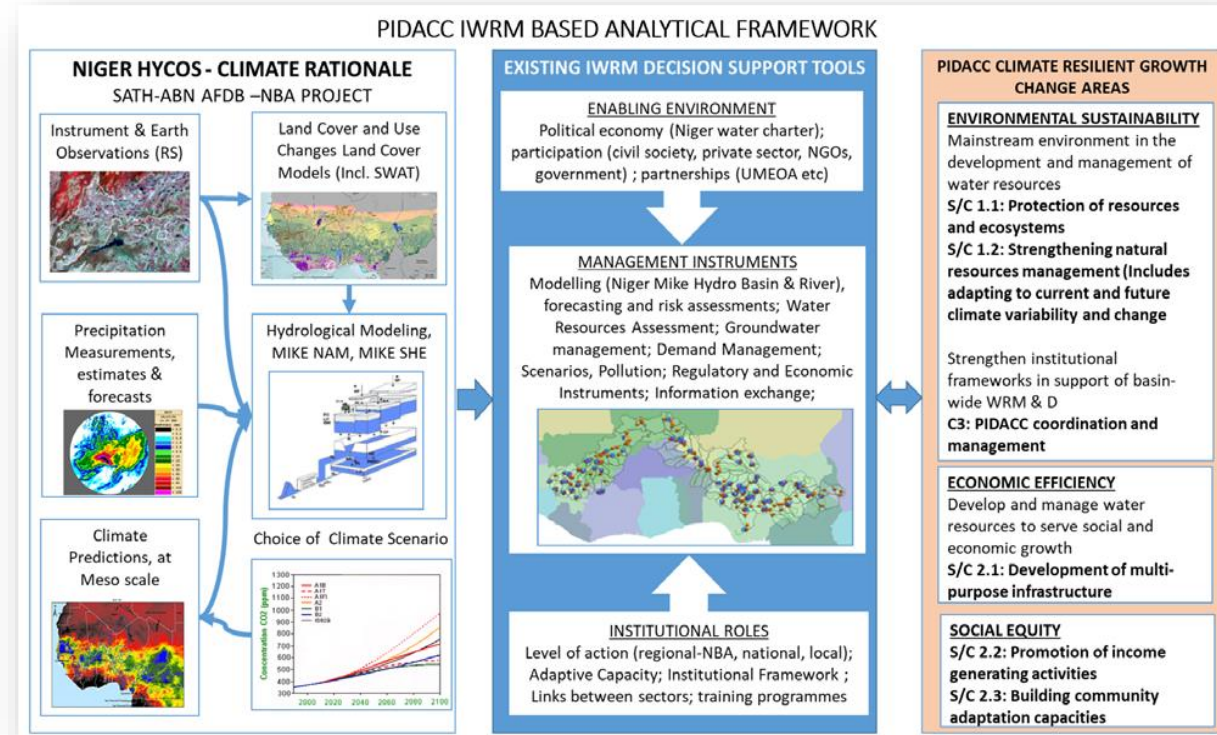
Solution: aims to contribute to improving the resilience of populations and ecosystems in the Basin through sustainable management of natural resources **by** reducing the silting process of the Niger River; enhancing the adaptability of populations to climate change; and improving natural resource management and integrated ecosystem management, the protection of biodiversity and the restoration of soil fertility.

- ❑ Beneficiaries: 14 m
- ❑ Co2tonnes: 7 m
- ❑ Funding: \$209.9 m (GCF: \$67.7 m)

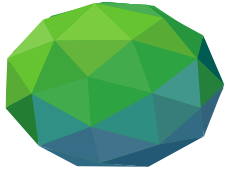


TRANSFORMATIONAL PLANNING

IN THE NIGER BASIN (PIDACC/NB)



Approach to paradigm shift : creation of an enabling environment for more informed policy making for climate resilient growth in the Niger Basin. Practical examples will include strengthening: (i) awareness raising and information exchange; (ii) national implementation strategies for EWS and community-based adaptation; (iv) climate resilient agriculture, biodiversity, forestry and ecosystems management; and (v) establishment of information systems for GHG inventories.

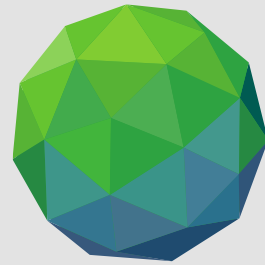


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How to Improve Financing Transboundary Water



- ❑ Maximise the value of existing assets for water nexus related investments through **cooperation**
- ❑ Design investment pathways that **maximise related benefits and co-benefits** over the long term in line with Paris Agreement, ESG Impacts and SDGs
- ❑ *Projects should be designed to be **scalable and adjustable** to changing conditions.*
- ❑ Ensure synergies with investments in other sectors
- ❑ Attract more **financing by improving the risk-return profile** of NEXUS investments
- ❑ Leverage opportunity from recovery packages using **IWRM coordination mechanisms**
- ❑ Improve **coordination and prioritization** of funds across sectors and develop integrated finance/investment with multiple co-benefits across sectors
- ❑ Improve **coordination** between donors and banks for investment targets and benefits
- ❑ Improve **cooperation** to transparency, integrity, anti-corruptions and accountability
- ❑ Actively mobilizing private sector accompanied with good **policy and supported investment environment**



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