

Water Security in Africa

How Innovative Financing Can Enable Climate Resilient Development

AFRICA'S CHALLENGE IN INVESTING IN WATER SECURITY

The African continent finds itself caught within a perfect storm, facing two significant developmental challenges in supporting rapid growth and preparing for climate change. From a pure demand perspective, Africa's infrastructure deficit is considerable. In the water sector alone, it is commonly estimated that the continent needs to invest approximately US\$50 billion per annum over the next three decades to overcome this gap and service future needs.¹

On top of this, Africa as a continent is the most vulnerable and hardest hit by climate change within the water-energy-food nexus:

- Water security, the capacity to provide and protect sustainable access to potable water, is increasingly an issue of concern at a local, national, and transboundary scale;
- Energy security is a challenge, in particular with the increasing prominence of hydropower in

- Africa's current and future energy mix; and
- Food (in)security poses a considerable risk to health, livelihoods and regional-political dynamics, with the current reliance on rain-fed agriculture.

The ongoing implications of this change have placed economic and social gains of the last decade, as well as expected future growth, at significant risk. Not only is substantial development essential to meet natural demand, but up to US\$30 billion is required annually to sufficiently respond to the threats of climate change.²

These funding requirements are extensive but essential. Historically, financing water projects in Africa has been challenging due to numerous factors, including service affordability and long payback periods. The additional dimension of climate change requires policy makers and project proponents to consider innovative sources and mechanisms of financing to allow them to expedite the necessary development.

1. PIDA. 2014. Africa Transboundary Water Resources Outlook 2014; IPCC. 2007. Mitigation of Climate Change. 4th Assessment Report.
2. African Development Bank. 2011. The Cost of Adaptation to Climate Change in Africa.

FUNDING AFRICA'S WATER PROJECTS – THE INCREASING FINANCING GAP

The ICA's project development can be broken down into a six phase project development cycle, grouped into three stages. It is important to note that the first five phases, up to and including transactions, support constitute the project preparation process:

- Early stage preparation, which encompasses the enabling environment and project definition;
- Mid-stage preparation, which encompasses project feasibility and project structuring; and
- Late stage preparation/implementation, which encompasses transactions support.

The final project phase is post-implementation support, which requires regular monitoring of outputs and outcomes, impact evaluation and often renegotiation/refinancing.³

Broadly speaking, this cycle, as depicted in Figure 1, can be broken down into three components – preparation, implementation, and operation:

Figure 1: Key components of project preparation



3. For more information, please see the ICA's 2014 Concept Paper on Effective Project Preparation for Africa's Infrastructure Development.

A project will incur costs related to each of these life-cycle phases, but the characteristics of those costs will differ. This has important implications on the nature of funding required to cover all costs and enable a sustainable project from start to finish.

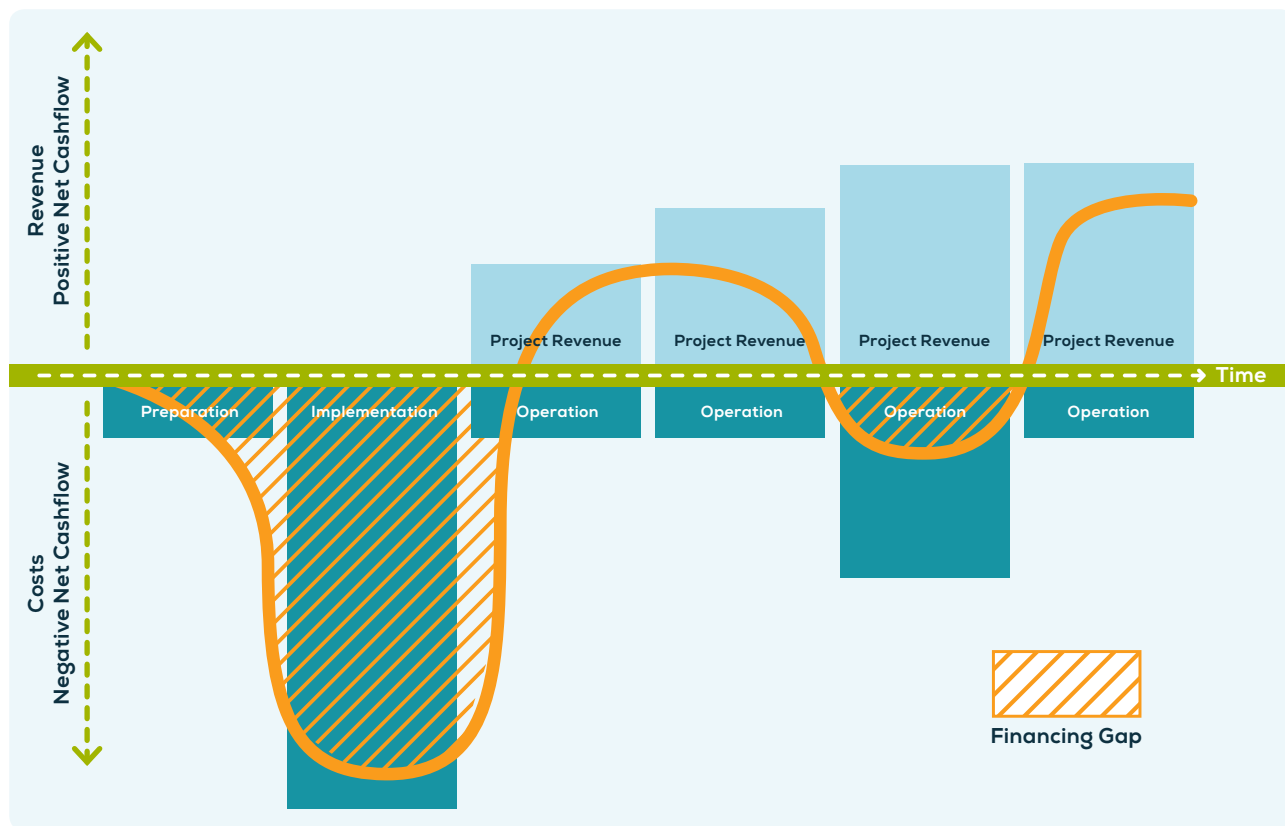
Funding for the development of water projects, from early conceptualisation through to mature operations, can come from three fundamental sources – revenue (generated by the project), the public fiscus, and external transfers or contributions. The quantum and timing mismatch between funding from these sources, and project costs over its lifecycle, is the “financing gap,” as depicted in Figure 2. While this figure depicts a typical project situation, variations may occur on the “income” side of the graph, in terms of types of sourcing for preparation, implementation and operational income.

The financing gap in water infrastructure and systems development is being increasingly exacerbated by the growing supply-demand deficit, and the urgent need to invest in security and resilience. Historically, the preparation, implementation, and operational costs

of several water projects have been directly covered through a combination of funding from the above three sources, including concessional debt facilities.

However, it is unlikely going forward that many African water and water security initiatives will be viable or sustainable through direct funding. Many such projects (for example, early-warning systems or flood management initiatives) generate no or limited revenue, and thus cannot cover, or recover, all their costs, but have a positive impact on the country’s economy. Further, for many countries in Africa, affordability constraints limit the size of the market that can afford to pay tariffs at the full cost of the service. In addition, water projects requiring heavy infrastructure often have long development timelines, lengthening the payback period for investors and increasing geo-political risk (for example, if governments and policies change mid-development). Finally, the expedited timelines and sheer scale of the demand and need facing African governments will almost certainly rule out full project facilitation through direct funding for all except the smallest initiatives.

Figure 2: Understanding the financing gap as it relates to preparation, implementation and operation

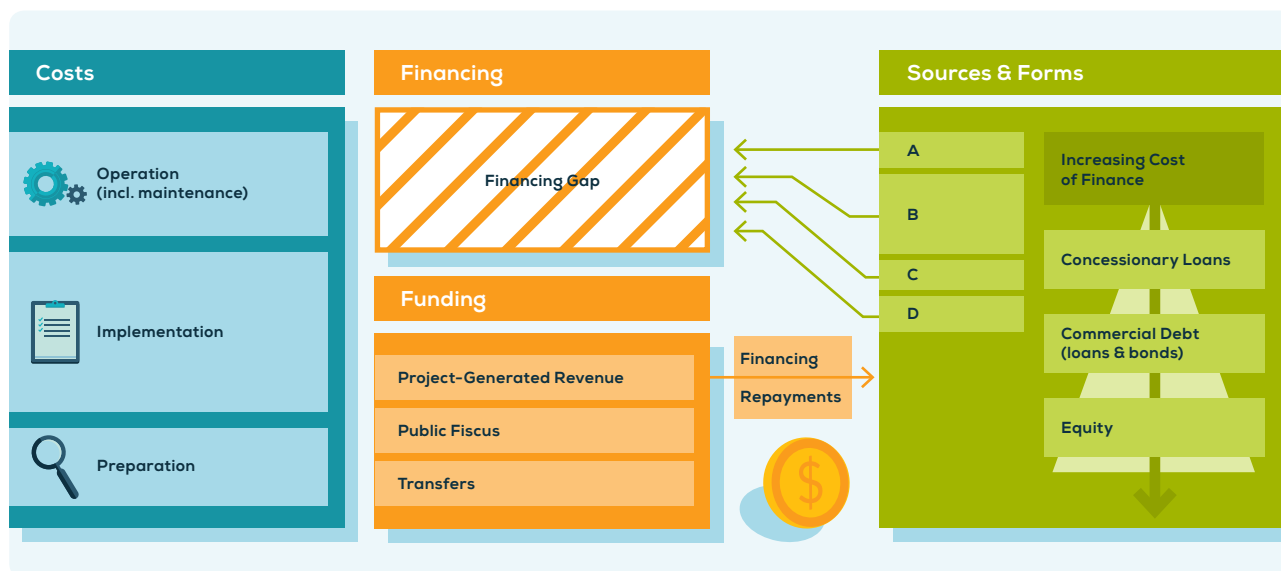


To promote development going forward, policy makers and project proponents must look to utilise the limited quantum and nature of funding available to them in order to leverage finance from numerous possible sources within an expanded pool. Through innovation driven by project promoters and investors, such finance can be used to cover the

growing financing gap, ultimately enabling urgently needed initiatives which may otherwise have remained unworkable.

Figure 3 highlights the costs, funding and financing sources associated with project development, as well as ways to bridge the financing gap.

Figure 3: Funding and financing project costs



MOVING FORWARD - HOW CAN RESILIENT WATER PROJECTS BE FINANCED?

The three phases of the project life-cycle may all require financing, although the source and characteristics of that financing may differ from stage to stage.

PROJECT PREPARATION PHASE

Project preparation is a vital, early project life-cycle phase that ultimately transforms an idea into a feasible and bankable venture ready for external project financing – that the project is viable, risks mitigated, and is equipped to receive funds for implementation. Without thorough preparation, it is unlikely that a project will attract sufficient and appropriate financing to allow it to proceed. Conversely, a thorough and well-conducted preparation phase can open access to a wide pool of potential financing and significantly improve a project's chances of success.

Early concept development is of paramount importance to understanding project eligibility, identifying the right project promoter and defining potential institutions who will drive the process. Moreover, concept note development helps building

institutional capacity, as project champions are coached through the process of taking ideas from lists to concept notes or pre-feasibility. Yet, there is little or no support for this critical stage.

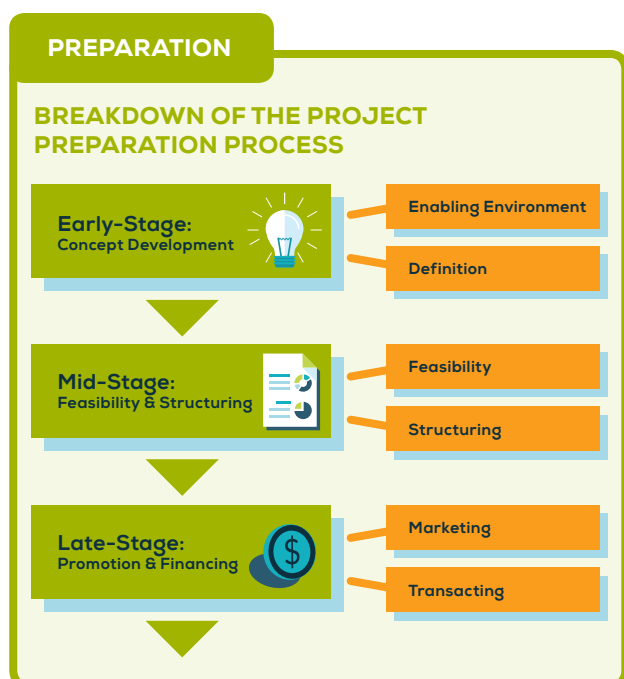
Funding and financing to cover activities undertaken in this phase has been a critical constraint to infrastructure development and service provision on the African continent. Policy makers have historically not understood the importance of a wide-ranging preparation process, instead prematurely looking forward to implementation. Financing requirements for preparation are small compared to that for implementation and operation (often less than 5% of total capital costs).⁴ Yet the impact of a well-conceived project is substantial; the relative returns on investment in preparation arguably greater than those derived from spending on the other project life-cycle phases.

4. NEPAD has recently suggested that preparation costs in Africa are closer to 10% of a project investment cost, particularly as upstream preparation has not been done (see PPIAF's Gridline article on The African Project Preparation Gap for more information).

The early stages of project preparation, relating to concept development, are the most challenging with respect to both definition and financing. However, concept development lays a critical groundwork for the remainder of the preparation process, through to implementation and operations. In effectively articulating the merits of the proposed project, it allows project proponents to begin engaging with sources for both later-stage preparation (including detailed feasibility studies, project structuring and planning, promotion, and transacting to financial close) and implementation finance, and permits funders and financiers to make a positive initial assessment of the project's virtues before the need for a full proposal. For an understanding of the project preparation process, please see Figure 4.

Typically, project preparation has been funded directly through the three sources previously discussed, although budgetary and capacity constraints have limited preparation comprehensiveness. Bilateral and multilateral development agencies and banks have been the most common source of preparation funds, mostly in the form of grants or very low-interest rate sovereign debt. However, with growing awareness of the importance of preparation, the pool of potential financing sources and mechanisms is growing through specialised mechanisms.

Figure 4: The Project Preparation Process



INNOVATION AREAS OF FOCUS



PROJECT PREPARATION FACILITIES

- Funds and facilities set up and supported by multilateral or bilateral development banks and funds, specifically for the purpose of supporting project preparation, and expediting and strengthening project development
- Typically provide grant funding and technical assistance, although several also provide low-rate concessional loans or risk capital

CONCEPT DEVELOPMENT INCUBATORS

- A very recent notion, stemming from acknowledgement of the critical role concept development plays in enabling a project
- A specialised Project Preparation Facility that bridges the disparity in focus and financing within the steps of the Project Preparation stage
- Potentially plays a proactive (rather than passive) role in incubating water security and climate resilience projects, and coordinates and pools financing for conceptualisation

CLIMATE FUNDS

- Growing awareness of the importance of incorporating low-carbon and climate resilient design into project concepts at early stage of development
- Additional mitigation of climate-related risk, which will further increase interest from later stage financiers increasingly aware of the potential impact of such
- Typically grant funding



ONE TO KEEP AN EYE ON



IMPACT INVESTING AND DEVELOPMENTAL PRIVATE EQUITY

- Growing interest in developmental projects from private sector with increasing social and environmental awareness
- Projects with the right characteristics (the ability to generate an appropriate commercial return) could attract early-stage risk capital if marketed correctly
- Typically in the form of equity (analogous to seed capital) or convertible debt at concessional terms
- With the right project characteristics, there is no reason why impact investment cannot support preparation, given rapidly growing space and plenty of investment in implementation; look to key areas like micro-hydro, waste-water treatment, and SME agriculture projects

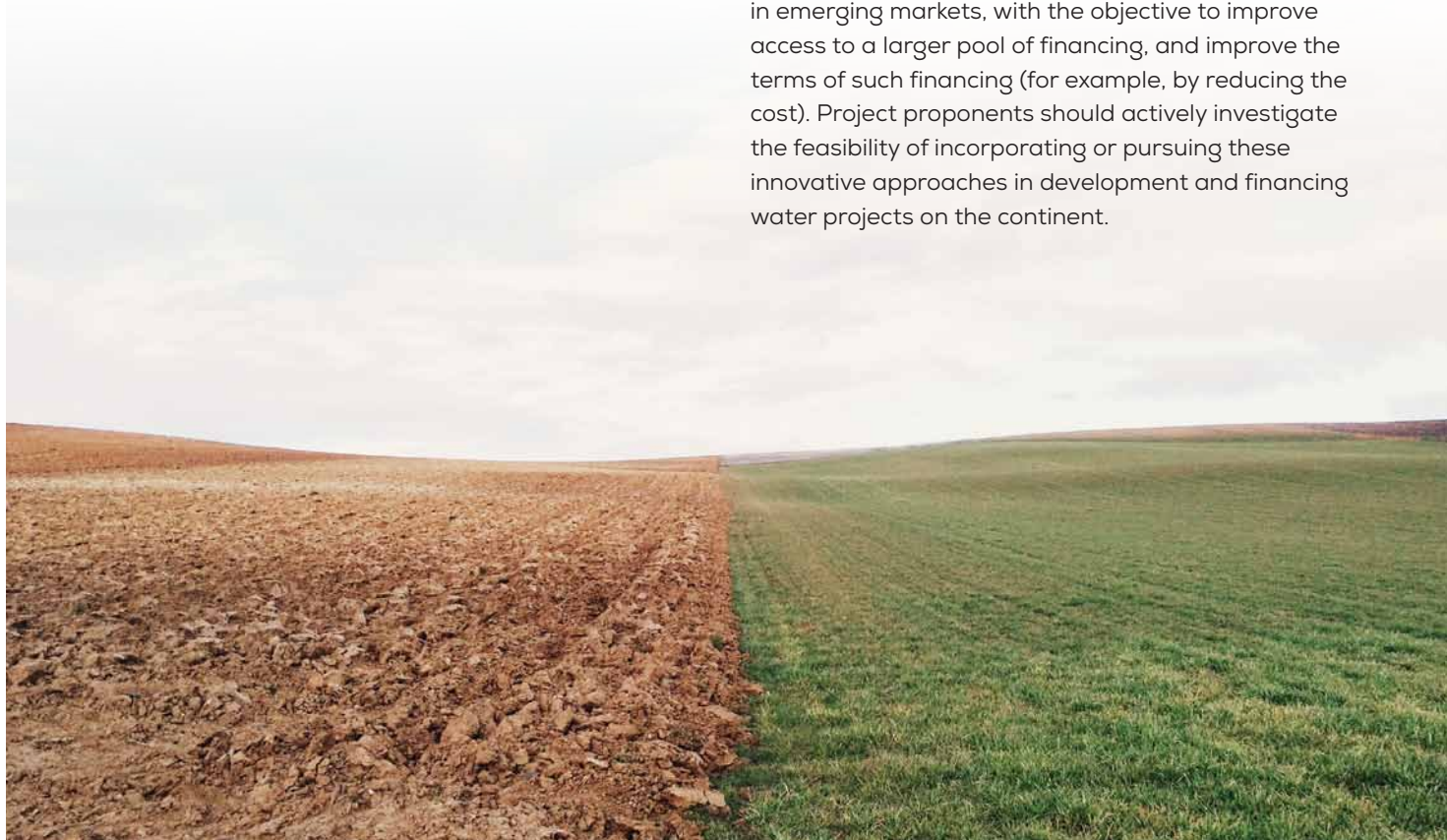
Even at a preparation stage, project promoters can utilise a small component of direct funding to demonstrate commitment and confidence in the project (albeit at an early stage), increasing attractiveness to external financiers.

PROJECT IMPLEMENTATION AND OPERATION PHASES

Project implementation is concerned with the execution of strategies and plans developed in the preparation stage of the project life cycle. Costs associated with implementation are incurred in a relatively short period of time, taking the entire project life cycle in account. The costs involved are often capital in nature, requiring outlay on infrastructure, and represent a large “spike” in a project’s life cycle financing requirements.

Compared to implementation, operational costs will be incurred over a much longer period of the project’s life cycle. Broadly speaking, these ongoing costs after implementation include those directly involved in sustaining operations, expenditure on any maintenance, and further capital investment as required. Where applicable, projects will also generate revenue during operations. All factors being equal, projects may take several years before operational costs (and any revenue) begin to stabilise from one financial period to another.

Historically, water projects have predominantly been facilitated through funding and financing from bilateral and multilateral development entities, including banks and financial institutions. Such financing has largely taken the form of concessional loans or commercial debt. However, more innovative approaches are being developed and gaining traction in emerging markets, with the objective to improve access to a larger pool of financing, and improve the terms of such financing (for example, by reducing the cost). Project proponents should actively investigate the feasibility of incorporating or pursuing these innovative approaches in development and financing water projects on the continent.



INNOVATION AREAS OF FOCUS



FINANCE BLENDING AND RISK SHARING

- Finance blending (or hybrid) mechanisms are structured to effectively and efficiently pool resources, by leveraging off limited government and donor resources
- Government and grant funds committed to a project can subsequently attract and catalyse other sources of (repayable) financing through a demonstration of confidence, and an enhancement of commercial metrics (overall cost-of-capital, returns)
- Blended instruments may further share or transfer risk between “layers” of financing to interest investors with different risk-return profiles – for example, government or external credit enhancement funds can assume first losses on a project
- Guarantees and insurance can be utilised to complement blended mechanisms

POOLED FINANCING

- Grouped financing models hold several projects under a single special purpose vehicle aimed at mobilising finance from a wider market at a lower cost
- The mechanism is especially useful for smaller projects which individually may be too minor or too risky for investors – by pooling these projects, market access can be increased, transaction costs decreased, and finance costs lowered
- Consolidation under a single entity also provides development and operational efficiencies, whilst various credit enhancements can be bolted on to further incentivise participation

GOVERNMENT INFRASTRUCTURE AND PROJECT BONDS

- Bond issuance in Africa is growing rapidly, but still relatively untapped as a source of financing for primary infrastructure development at sovereign, sub-sovereign, and a project level
- Bonds open up access to large international institutional markets
- Increasing global appetite for specialised green bonds – created to finance projects with positive environmental and climate benefits
- Bonds issued in local currency or to growing local capital markets will have the added advantage of avoiding currency fluctuation risk

CLIMATE FUNDS

- Historically been focused on mitigation, but growing trend towards supporting the co-benefits of adaptation and mitigation in emerging markets, including Africa
- Most will only cover a project’s “incremental” costs related to adapting the design for low-carbon or climate resilience, but can be harnessed to leverage additional financing from other sources by improving risk-return metrics

PUBLIC-PRIVATE PARTNERSHIPS

- Although the general concept of public-private partnership is well known in many African countries, most are now only beginning to develop the policy, institutional, and investment structures to facilitate their deployment
- Public-private partnership (and broader private sector participation) will play an important role in harnessing private sector capacity, expertise and capital for development (where the nature of the project lends itself to such)
- Private sector role-players open access to finance that would otherwise be unavailable to a project, and assume partial risk

ONE TO KEEP AN EYE ON



REDUCTION OF NON-REVENUE WATER

- Rapid urban and economic growth in African countries and cities will see water loss through leakage, theft, and similar, and the monetary value attached to such, becomes increasingly an issue
- Effective structures and mechanisms to stem this loss should increase revenue from existing projects, whilst increasing the commercial viability of future projects
- Increasing commercial viability expands the financing pool, whilst reducing loss (and potentially increasing revenue) could lead to benefits such as improved utility credit ratings or mechanisms that trade in the future value of water
- NRW initiatives themselves may make valid projects, the characteristics of which may attract financing otherwise not interested in more typical water projects

A NEW FRONTIER - MANAGING CLIMATE RISK THROUGH INSURANCE

Climate change, and particularly shorter-term extreme events such as floods and droughts, threaten sustainable development in Africa. Weather-related disasters can, in a brief period, significantly erode and set back socio-economic progress made over many years in highly fragile populations.

The resilience of peoples, projects, and governments to climate change, particularly extreme events, can be increased through climate risk insurance. Such insurance will, in the near future, play a vital role in a suite of climate risk management instruments. In contrast to mechanisms that prevent or reduce the risks of climate change, insurance will spread and transfer risk by diversifying losses across sectors, geographies, nations and time. In the event of a disaster, the loss of assets, and by extension livelihoods, will be financially covered in an efficient and timely manner.

Climate Risk Insurance is not a new innovation – the Munich Climate Insurance Initiative was established in 2005. However, it has only recently begun to gain significant traction, especially with the increasing incidents of extreme weather events, and the benefit of high-tech innovations and smart data systems. Details of the G7 Initiative on Climate Risk Insurance were confirmed in June 2015. The overall objective of the initiative, also known as “InsuResilience,” is to

“stimulate the creation of effective climate risk insurance markets and the smart use of insurance-related schemes for people and assets at risk in developing countries, thereby complementing intensive climate change adaptation, risk management and poverty reduction and underpinning economic development.”

Further commitments were made at the COP21 summit in Paris in December 2015, with the goal to extend direct and indirect (the final beneficiary is covered by an insured intermediary e.g. a government entity) coverage to an additional 400 million beneficiaries by 2020, from a current number of just 100 million. It is estimated that more than half of

these 400 million beneficiaries will be located in sub-Saharan Africa. To achieve this objective, G7 nation funds will be utilised to leverage additional risk capital from the private insurance and re-insurance industry, including such global players as Swiss Re and Munich Re. The former is a partner of the Climate Insurance Fund, an initiative by KfW on behalf of the German Government, to provide financing to insurance companies in ODA-recipient countries, who in turn can offer climate risk insurance to local micro, small, and medium enterprises.

The African Union’s African Risk Capacity (ARC) is a comprehensive, integrated solution to tackling the impact of natural disasters on vulnerable people. ARC transfers the burden of weather risk away from governments, enabling them to build resilience and plan, prepare and respond to extreme weather events. The aim of ARC is to catalyse a better risk management system for Africa and provide the capacity building support required to implement such a system. This is done through risk pooling, which involves combining the risk of drought and, in the future, other extreme climate events occurring across several countries to take advantage of the natural diversity of weather systems across Africa. Since its launch in May 2014, ARC Ltd has issued drought insurance policies totalling nearly \$130 million in coverage to Kenya, Mauritania, Niger and Senegal, in return for a total premium cost of \$17 million. Five additional countries joined the pool in May 2015, thereby increasing drought coverage to \$192 million for the 2015-16 rainfall seasons.

Climate risk insurance has the obvious benefit of reducing the direct economic and social impact of adverse climate events, once they have occurred. However, instituting appropriate insurance coverage for a particular project, for example, an irrigated agricultural development, can also reduce risk and increase appetite from financiers and investors (lowering the cost of capital). Appropriately conceived climate risk insurance can in addition promote and incentivise (for example, through lower premiums) the development of other measures that increase resilience through prevention or risk reduction.

KEY MESSAGES

- The traditional approaches to funding and financing projects in the water and water-security sector in Africa are no longer sufficient. The twin challenges of a growing infrastructure deficit and the increasing threat of climate change necessitate an evolution in approach.
- Project preparation is a vital foundational phase in developing resilient water projects. Thorough preparation creates a viable and bankable project, increases its attractiveness to investors, minimises risk, expedites development, and sets a venture up for long-term impact and success. However, funding and finance remains a critical constraint, particularly in the early concept development stage of project preparation which is key in attracting investment for all subsequent steps of the lifecycle.
- Financing water project implementation and operations has increasingly become a challenge. The rapidly growing quantum of investment required to meet demand and adapt to climate change, coupled with factors concerning affordability, payback horizon, and geo-political risk amongst others, have contributed to a widening financing gap.
- Fortunately, the opportunities open to project proponents for sourcing suitable financing at all lifecycle phases have never been so extensive. Wide-ranging innovation, coupled with growing interest and appetite from capital markets with little historical interest in the sector, and catalytic traditional funds, can support the necessary climate resilient water-energy-food security development on the continent. The onus lies with policy and decision makers to effectively engage with, and facilitate, such options.

GENERAL REFERENCES

GIZ, German Federal Ministry for Economic Cooperation and Development – Climate Risk Insurance: A Background Paper on Challenges, Ambitions, and Perspectives, May 2015

UNEP – Innovative Climate Finance: Examples from the UNEP Bilateral Finance Institutions Climate Change Working Group, 2011

OECD – Innovative Financing Mechanisms for the Water Sector, 2010

GWP – Policy Brief No. 5: Innovative Approaches to Water and Climate Financing,

World Bank – Innovative Finance for Development Solutions

PPIAF – Gridlines Note 18: **The African project preparation gap** Africans address a critical limiting factor in infrastructure investment, 2007





Photo: © IWMI

This Policy Brief is a product of the lessons learned and experiences from the Water, Climate and Development Programme (WACDEP) an African Ministers' Council on Water (AMCOW) programme implemented by the Global Water Partnership (GWP) and partners. The Infrastructure Consortium for Africa (ICA) provided technical support, through Pegasys Capital, for the implementation of the WACDEP component on Project Preparation and Financing and this forms the basis of this Brief. Opinions expressed in this publication do not imply endorsement by AMCOW, GWP and ICA.

About the Infrastructure Consortium for Africa (ICA)

The Infrastructure Consortium for Africa (ICA) is a tripartite relationship between bilateral donors, multilateral agencies and African Institutions. Its Secretariat is hosted by the African Development Bank (AfDB) in Abidjan, Cote d'Ivoire, financed by voluntary contributions from the ICA members and staffed by a combination of permanent staff from the AfDB and experts on secondment from ICA member countries. The vision of ICA is that all Africans have access to sustainable and reliable infrastructure services. Its mission is to strive to increase finance for sustainable infrastructure development in Africa, to help improve the lives and economic well-being of Africa's people. Overall, the ICA encourages, supports and promotes increased investments in infrastructure in Africa, from both the public and private sectors. It works to facilitate infrastructure development in the water, transport, energy and Information & Communications Technology (ICT) sectors, through both regional programmes and country-specific initiatives. Not a funding agency, the ICA is a platform that works to catalyse a step-change in the financing of infrastructure projects and programmes across the continent. The ICA also works to overcome technical and political challenges to building more infrastructure, and it helps to improve understanding of Africa's infrastructure development needs through the provision of better information.

About the Global Water Partnership

The Global Water Partnership (GWP) vision is for a water secure world. Our mission is to advance governance and management of water resources for sustainable and equitable development. GWP is an international network that was created in 1996 to foster the application of integrated water resources management: the coordinated development and management of water, land, and related resources in order to maximise economic and social welfare without compromising the sustainability of ecosystems and the environment. The Network is open to all organisations which recognise the principles of integrated water resources management endorsed by the Network. It includes states, government institutions (national, regional, and local), intergovernmental organisations, international and national non-governmental organisations, academic and research institutions, private sector companies, and service providers in the public sector. The Network has 13 Regional Water Partnerships, 84 Country Water Partnerships, and 3,000 Partners located in 172 countries.