

Topic Concept Note Template

Thematic Process, 11th World Water Forum

- **Theme Number:** 2
- **Theme Title:** *Water Finance*
- **Topic Number:** 2D
- **Topic Title:** *Funding and Loans for Multiscale Projects*
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I. Topic Overview

Rationale and Context

Equity and Inclusion as Core Principles for Water Investment

- The question arises why, notwithstanding the rich studies and research on the benefits of water investments, we witness a shortfall of intended outcomes in the field of investment to create new infrastructure. Such question leads us to collect the legacy of the Bali Forum and collect the exhortation to ensure equity, to identify financial mechanism to develop ability to obtain economic resources. Marginalized populations – including rural communities, urban informal settlements, women, and indigenous groups – continue to experience disproportionate exposure to water insecurity. The emerging paradigm explicitly embeds equity and inclusion as core evaluative criteria rather than ancillary considerations. Research and management frameworks must systematically address distributional outcomes related to access, affordability, legal entitlements, and participatory representation. Approaches such as gender-responsive water governance, community-managed groundwater systems, and decentralized infrastructure – including rainwater harvesting and managed aquifer recharge – demonstrate significant potential to enhance equity while strengthening local adaptive capacity.

Bridging the Financing Gap for Regional and Multiscale Water Infrastructure

- Water security is the cornerstone of global resilience, yet the financing gap for water infrastructure remains a critical barrier. While large-scale national infrastructure often attracts traditional funding, multiscale projects (regional, basin-level, or decentralized) frequently fall into a "financing gap." The development and implementation of such regional projects require specific considerations, including:
 - joint governance, approval, execution, and monitoring processes;

- a political and regulatory framework;
- harmonization of procedures and common standards at the operational, technical, environmental, social, and security levels.

From Policy to Bankability: Engaging Financial Actors Beyond the Water Sector

- To ensure the actionable viability of the mechanisms developed by Group 2D, the session will intentionally move beyond traditional water sector actors. A diverse coalition of financial architects will be courted to align institutional mandates with water security goals. The presence of these stakeholders is critical to transitioning from high-level policy theory to bankable project structures. By integrating local and international liquidity providers—specifically those managing long-term liabilities and regulatory frameworks—Group 2D aims to create a 'market-ready' forum where financial constraints are addressed through collaborative engineering of Public-Private Partnerships (PPPs) and blended finance instruments."

Integrating Surface Water and Groundwater Management

- Gathering information on conjunctive potential and use of surface water and groundwater resources.

Strengthening the Knowledge Base: Scientific and Indigenous Data for Decision-Making

- Investing in scientific and indigenous information or data because information or data is key for water investment, policy, and strategy for every activity and decision related to water.

Upstream Project Preparation as a Catalyst for Investment Mobilization

- This note should benefit from placing greater emphasis on upstream project preparation. Experience shows that the main bottleneck is not only access to finance, but the limited availability of well-prepared, bankable projects. Strengthening feasibility studies, financial structuring, risk assessment, and institutional capacity is essential to unlock downstream investment.
- The topic is strongly aligned with: SDG 6.A (international cooperation) and SDG 17 (partnerships), while underpinning SDG 13 (Climate Action) by financing resilient infrastructure.

Objectives of the Topic

Freshwater as a Coupled Socio-Ecological System

- The emerging paradigm advances a reconceptualization of freshwater systems as coupled socio-ecological systems characterized by dynamic feedbacks among hydrological processes, ecosystems, institutions, and human behavior. Within this framework, water security is understood as an emergent property of interactions among climate variability, land-use change, energy systems, governance structures, and socio-economic drivers. Consequently, freshwater research must move beyond disciplinary

compartmentalization toward integrative systems-based approaches that synthesize hydrology, ecology, economics, political science, and institutional analysis.

From Expert-Driven Research to Knowledge Co-Production

- A central pillar is the transformation of knowledge production processes. Traditional expert-driven research models often generate technically optimal solutions that prove ineffective or unsustainable when deployed in real-world contexts due to limited stakeholder acceptance, institutional constraints, or misalignment with local socio-cultural conditions. Secured freshwater access requires the co-production of knowledge that is scientifically credible, socially legitimate, and operationally actionable.

Policy and Institutional Innovation: Concessional On-Lending Mechanisms

- Policy and Institutional: Advocate for "Concessional On-Lending" protocols where low-interest MDB loans are passed directly to operators to lower the Weighted Average Cost of Capital (WACC).

Innovative Financing Instruments for Multi-Scale Water Projects

- Innovative financing mechanism: Advocate for financing through the implementation of PPPs. In addition to the public and private sectors, investment funds and other specific sources (Climate Investment Funds, Green Climate Funds, foundations, Green Bonds) may be attracted to multi-scale projects.

Integrated Data Collection for Conjunctive Surface and Groundwater Management

- Add collecting information/data of conjunctive surface and groundwater.

Investing in Scientific and Indigenous Knowledge Systems

- Financing in scientific and indigenous knowledge
- **Inclusive Governance and Indigenous Participation: Discuss how governance reforms can empower indigenous groups and marginal communities, ensuring water as natural capital benefits are equitably shared.**

Project Preparation Facilities as Catalysts in the Financing Value Chain

- We recommend highlighting more explicitly the role of Project Preparation Facilities, such as the AWF, as catalysts in the financing value chain. Targeted concessional support at early stages significantly reduces risk and generates strong leverage effects on private and public capital.

II. Key Issues, Opportunities, and Scope

Key Challenges

- linkages between financing mechanisms, governance reforms, and institutional strengthening would further reinforce sustainability. Mobilizing capital requires credible tariff systems, effective regulators, transparent financial management, and capable operators.
- The session propose to discuss suitability of each of the financial modalities here below listed in various context, to move from reliance on concessional financing towards more self-sustaining financing approaches. Our main objective is to discuss and understand

what are the types of financing needed for the water sector and how financing is evolving globally.

- Sovereign Middleman Costs: Fees and administrative hurdles that prevent low-interest rates from reaching the project level.
- Data Gaps: A lack of transparent financial and operational data makes projects "unbankable" to private insurers.
- Conduct an analysis of financial instruments for multi-scale infrastructure projects

Opportunities and Strategic Importance

- A normal bond has a short duration given the nature of a water investment in the sense that a reimbursement of around 9 years discourage the issuers; in fact a water project could take three years to become operative and the residual period of six years is insufficient to collect the necessary money to repay the capital.
- In this context we draw the attention on the advantage of a perpetual bond and pension fund.
- The perpetual bonds does not implies reimbursement of the capital (maybe in 30 years) and it ensures higher yields to offset. That means that the issuer must find the money needed to pay only the annual interest and this implies that even the countries which are not rich may attract investors since the risk of default in reimbursing the capital is highly reduced. This means further that such bonds could lead the investor to limit their assessment of the risk of the investment only to the capacity of the State issuer to pay the annual interests and since the water investment recipient is meant to produce services, the default risk is unlikely. In addition investors are attracted by high yields and therefore are inclined to take higher risk. As a result the perpetual Bonds ead investors and issuers to stimulate innovative mechanism to fund water infrastrcture water projects. In addition the perpetual bonds are liquid. In other words perpetual bonds offer a viable mechanism to mobilize long-term, patient capital for water infrastructure by aligning financing with the long asset life of water systems while easing near-term repayment pressures through ongoing coupon payments rather than principal amortization. When combined with concessional features or blended-finance structures, they can attract institutional and impact investors seeking stable returns from essential services. For example, the African Development Bank has successfully issued perpetual hybrid capital instruments expanding its capacity to finance climate-resilient investments, including in the water sector.
- In the same line, we mention the pension fund. Pension funds don't usually take the initial construction risk. Instead, MDBs and G2G funds "pave the way" by fixing the regulatory environment and handling early-stage risk. Once the water project is operational and showing steady cash flow (from tariffs or government availability payments), pension funds "take the baton" to provide the permanent, large-scale financing that governments alone cannot sustain.
- While instruments such as perpetual bonds, pension funds, and layered capital are promising, their applicability depends on country contexts, regulatory frameworks, and utility performance. Greater differentiation across fragile, low-income, and middle-income settings, combined with sustained technical assistance, would enhance realism and impact.

- There is a massive untapped opportunity to layer capital: using MDB loans as "Junior Debt" (risk-taking) to attract Pension and Provident Funds as "Senior Debt" (long-term stability). This creates a diversified value-chain approach to water assets.
- Advantages and Limitations of Shared and Common Interest Infrastructures.

Proposed Priorities of the Topic / Guiding Questions

- The higher the risk, the higher return the private party will get. We must manage the risk so that the risk is low, because the amount of revenue can service, in much part, the investment. Private party has a choice to work alone or has partial ownership of the project, but it's culturally difficult to have foreign or private investment bank. The analysis of the risk of the revenue is really important to run the project. Private party has to look all of the sources of fund and see it is sufficient to develop the project. Full package must have sufficient funding in construction development monitor, so there is still enough money left to make the project done. They should closely monitor on insurance, local taxes, the cost of the workers; all have to be factored in and compared to the revenue, make sure there is enough revenue is being generated, whether it is through government subsidies to make the project works or something else.
- Government can lower the risk in partial for long guarantee.
- Mapping of funding sources for multi-scale projects, including advantages and disadvantages.
- We encourage clarifying the operational pathway from dialogue to investment, including how projects are identified, prepared, labelled as bankable, and connected to financiers. A structured pipeline approach would help translate Forum discussions into tangible results.
- We also emphasize the importance of project structuring and transaction support in translating prepared projects into bankable investments. Strengthening financial and commercial design, while supporting sponsors in engaging financiers and navigating transactions, is critical to achieving financial close across both public and private financing structures.

Proposed Sessions of the Topic

- **We suggest a specific session on how the parties investors can negotiate to be released by a percentage of default on the part of the beneficiaries of the investment.**
- **A sensitive aspect which affect the issuance of bonds is the balance Sheet of the issuer and in particular its creditworthiness. The critical aspect of a bond is their repayment period: advantage of perpetual bond. For example we make reference to Tanga water Bonds: in such Tanga Water Bonds in order to expand the source of financing the government has studied the possibility of issuing municipal revenue bonds as an alternative source for financing the project. The purpose is to reduce burden on the government budget.**
- **It is advisable to promote session on security law to get familiar with the sensitive issues which must be faced in order to be allowed to raise money out of the private market : prospectus regulations.**
- **Pension Fund Managers: These are the "holy grail" for water finance because their long-term liability profiles (paying out retirees over decades) perfectly match the long-term lifecycle of water infrastructure.**

- A session should be dedicated to how build up a water projet by bring together various financial instrument and how to assess risks of the investments included climate changes.

III. Expected Outcomes and Deliverables

Policy and Strategic Outcomes

- Strengthened Institutional Capacity to piloting innovative tecnologies which can reach the most need in a cost-effective manner.
- Strengthened InstitutionalCapacity to address climate change impacts through training and technical support.
- Strengthened Policy and strategy outcomes from information/data of conjunctive surface and groundwater, and financing in scientific and indigenous knowledge.
- Encourage Equity applied to envisage innovative financial mechanism.
- Forge structure of governance which be adequate to adjust among partners the power of management, liabilities and distribution of arising benefit from the joint venture by Studying the nature of the partners.

Technical and Knowledge Deliverables

- The global landscape for the water sector is changing, with the private sector taking a more active role.
- “Corporate Social Responsibility mandate”, may have a key role to play in bridging the financing gap and helping to achieve the water-related Sustainable Development Goals.
- A new entrepreneurial philanthropy with attitude towards suitable investements owing to an adequate flow of information between upstream and downstream operators.
- Strengthening InstitutionalCapacity to piloting innovative technologies that can reach those most need in a cost-effective manner.
- Water-specific Revolving Loan Funds are financing tools capitalized by the Federal Government that local and state entities may benefit from. Examples of such are the Clean Water State Revolving Loan Fund and the Drinking Water State Revolving Loan Fund offered by the US Environment Protection Agency.
- The "Social-Tariff" Financial Model: A blueprint for regulators to enforce the pass-through of loan savings to household water meters.
- Encouragement to make recourse to the Perpetual Bonds
- Nexus approach
- Smart metering, Ring fencing to allocate utility revenues into infrastructure and not to be considered as a general public necessities funds
- De-risking mechanism such as credit guarantee to attract private lenders
- Extension of the “last mile” network to underseved communities
- Stabilized groundwater level and efficient water use

Partnerships and Financing Outcomes

Below are some key solutions available to foster the spirit of equity, offering significant advantages that support the project’s sustainability and, ultimately, its success.

- **Definition:** Government-to-Government (G2G) financing refers to financial transactions and assistance provided directly from one government to another. This type of financing supports

development initiatives, infrastructure projects, and other cooperative endeavors between countries.

Key Characteristics:

1. Direct Engagement:
 - G2G financing typically involves bilateral agreements where funding terms, project specifications, and objectives are negotiated directly between the two governments.
2. Types of Assistance:
 - Grants: Funds provided without expectation of repayment, often aimed at projects like health, education, water or emergency relief.
 - Concessional Loans: Loans offered at lower interest rates and extended repayment terms to facilitate development.
 - Technical Assistance: Support that includes expertise and training for implementing development projects.
3. Project Focus:
 - Projects funded through G2G financing can range from infrastructure development (such as roads, water, bridges, and hospitals) to social programs (like education and health services).
4. Implementation Mechanisms:
 - Funds are typically released based on specific milestones or criteria, ensuring accountability and transparency in usage.

Advantages

- Efficiency: Direct negotiations can streamline the approval and funding processes.
- Flexibility: Governments can tailor funding to fit specific national priorities and contextual needs.
- Strengthened Bilateral Relationships: Promotes cooperation and partnership between nations, enhancing political and economic ties.
- Often support projects that align with sustainable development goals.
- **Bilateral Development Banks. Definition:** Bilateral development banks are institutions established by a single country to provide financial aid (concessional loans or grants) and development assistance directly to another country (Government to Government).

A bilateral development fund is a financial resource provided by one government to another, aimed (G-to-G) at promoting development and addressing socio-economic challenges in the recipient country. This can include aid for infrastructure, education, health, and other critical areas.

1. Key Characteristics:

- **Membership:** Owned and operated by a single country.
- **Funding:** Governed by the national budget and may include repaid loans from recipient countries.

2. Examples:

- The Saudi Fund for Development (SFD)
- U.S. International Development Finance Corporation (DFC)
- Japan Bank for International Cooperation (JBIC)
- UK Export Finance

3. Financing Mechanism:

- Multilateral Development Banks (MDBs) play a critical role with a variety of scope, instruments, and strategic focus to scaling up water financing to compliment the national budget. The focus is developing and underdeveloped countries with sovereign loans, concessional finance, and guarantees for large infrastructure projects. In the context of low-cost recovery blended finance, co-financing and guarantees successful instrument for derisking. Creating an enabling environment to attract downstream financing is another area of the MDB's support where often projects are tied up with policy reforms such as improvement of governance and strengthening regulations as well as tariff rationalizations. Moreover, MDB's are instrumental in channel climate and adaptation financing. Often MDBs hosts special windows to support the upstream preparation work when project preparation of bankable project is a critical gap and also grant finance studies related better performance of the sector including capacity building. Bilateral Development Banks (BDBs) are the source of loans, grants and technical assistance and sometime flexible to quicker to implement. Often MDBs and BDB's together bring the desired scale, structure and concessionality. New financing trend support trends are towards blended finance, climate finance, results-based financing and improvement of creditworthiness of the utilities for scaling investments and building resilience and sustainability.
- Specific bilateral agreements or initiatives which may focus on sectors that are of strategic interest to the donor country.

Example of success story in BDB assistance and success story: The Saudi Fund for development (SFD).

This includes both grants to countries bilaterally and grants to countries institutions such as Islamic Development Bank or World Bank.

The SFD mission is to ensure stable economic development by providing financial and technical resources through leveraging the strengths of Saudi Arabia to address the needs of partners.

The SFD project and program focus on the social infrastructure sector: water and sanitation, housing, health and education. Its sectorial distribution goes from social infrastructure, transportation and communication, energy, agriculture, other sectors, industry and mining, international organization.

The SFD has generously funded by allocating grants the Saudi Well Drilling and Rural Development Program in Africa.

Since commencing its lending activities in 1975 until the end of 2025, the Fund provided 808 development loans to 101 developing countries across Africa, Asia and the Pacific, Europe, and Latin America and the Caribbean, with total financial assistance amounting to approximately \$22.45 billion.

In terms of sectoral distribution, the largest contributions were concentrated in the social infrastructure sector (education, health, housing and urban development, water and sanitation), with 277 development loans totaling approximately \$7.61 billion. This was followed by the transport and communications sector with 254 development loans totaling approximately \$5.95 billion, then the energy sector with 94 development loans totaling approximately \$3.95 billion, then the agriculture sector with 105 development loans totaling

approximately \$2.64 billion, then the industry and mining sector with 17 development loans totaling approximately \$0.47 billion, and finally other sectors and programs with 59 development loans totaling approximately \$1.61 billion.

- **Definition:** Multilateral Development Banks (MDBs) are financial institutions created by multiple countries that provide financial and technical assistance for projects in developing countries.
 1. **Key Characteristics:**
 - **Membership:** Involve multiple countries, often with a mix of donor (developed) and recipient (developing) countries.
 - **Funding:** Raise funds through member contributions, capital markets, and other sources.
 - **Focus:** Usually prioritize large-scale projects with regional or global benefits (e.g., infrastructure, health, education).
 2. **Examples:**
 - World Bank
 - Asian Development Bank (ADB)
 - African Development Bank (AfDB)
 - Islamic development Bank (ISDB)
 - European Bank for Reconstruction and Development (EBRD)
 3. **Financing Mechanism:**
 - Provide concessional loans, grants, and technical assistance.
 - Often support projects that align with sustainable development goals.
 - Collaborate with governments and other stakeholders to ensure project viability.
- Public-Private Partnerships (PPP), in which government agencies can draw a contract with private partners to renovate, construct, operate, maintain, and/or manage a water facility or system that provides a public service. We envisage two type of cooperation:
 - Public–Private Partnership (PPP): **The government does not directly finance the project; instead, it enables private-sector investment while committing to longterm service payments: in this regard it is advisable to look at the local Corporate law to puzzle how to attribute the power of appointment of the board of Director with respect to the stake of capital held by each partner as well as if it is lawful to assign a portion of the annual benefit which is not coherent to the stake of the partners**
 - Project Finance: The private sector provides upfront capital (equity + debt), and the government commits to performancebased and availabilitybased payments.
 - Overall Objective: Reduce the financial burden on the public sector, enhance spending discipline, and ensure longterm financial sustainability. However, to allow such solution to produce effective outcome, we must envisage a fair distribution of risk among the partners, which implies a severe assessment of the local climate risk, cultural local conditions, and quantify the risking cost. **Innovative Aspects:**
 - Using PPP as a financing and governance tool from the early planning stages.
 - Linking payments to performance rather than asset construction alone.
 - Integrating the full asset lifecycle (design, construction, operation, maintenance) into decisionmaking.
 - Planning at the level of the entire water value chain rather than individual assets.

- Contracting for the service itself, not just the physical asset.
- Benefits of NBS: the much more cost-effective investments in nature-based solution can enhance overall water security; however, there is need to be quantified the clear monetary value to help justify viability of the project as a bankable project. Quantifying also helps attract the private sector; however, to work with nature helps to address social challenge. The objectives of NBS project are: to promote organic farming practices such as composting, crop rotation, and natural pest control, to enhance soil health and water retention with organic farming methods, to reduce water pollution by eliminating the use of synthetic fertilizers and pesticides, and to educate and empower farmers by conducting programs and workshop for farmers
- Energy production revenues can finance environmental and social actions in the path towards sustainable development, bringing benefits to consumers and contributing to regional, sustainable economic and social development.
- Blended finance is an innovative finance approach for water infrastructure and services in order to identify financial solutions and thus developing frontier markers to meet the SDGs
- Carbon credit projects are underused owing to weak implementation of Paris Agreement. In this regard to explain the potentiality of the carbon credit option we make reference to "Project Lele". Such project carbon credit program is designed to tackle social, environmental, and economic challenges faced by the people of Timor Tengah Selatan (TTS) in Nusa Tenggara Timor (NTT). This initiative targets some of the poorest districts in Indonesia's NTT Province, aiming to empower Timorese indigenous communities to adapt to climate change through alternative agricultural systems.
- Recognizing that smallholder farmers cannot independently access global carbon markets, the program seeks to democratize participation by collaborating with communities to grow forest trees and food crops on their own private lands. These trees are then consolidated into community forests. Farmers receive trees to plant and nurture, earning annual incentive payments for maintaining the trees, which they own. The collective effort of each farmer contributes to creating new community forests that help sequester CO₂e from the global atmosphere.
- The successful partnership to support the implementation of the LELE project will establish a platform for local communities to contribute to Indonesia's Nationally Determined Contribution (NDC, 2022) by increasing emission reduction targets. Simultaneously, it will enhance the livelihoods of farmers and their communities by introducing additional income through carbon credits from both farming groups and afforested rangelands, as well as economically valuable tree species, the program will improve community resilience and adaptability.
- The 2027 "First-Loss" Accord: A signed MOU between MDBs and private insurers to provide first-loss guarantees for multiscale loans.
- **Australia-Indonesia Water Utility Improvement: Program, PDAM financing capacity.**

Actions and Initiatives for Implementation

The "100-Project Pipeline": A commitment to prepare 100 bankable multiscale projects for investment by the 12th Forum.

Communication and Visibility

Efforts to attract private sector connected to water issues which are able to increase the visibility of critical situations concerning diverse ecosystem

IV. Monitoring and Post-Forum Action

- **Legacy:** establish a Post-Forum Monitoring Framework to track capital mobilization for 2D projects.
- **Global Agendas:** Feed outcomes into the UN 2028 Water Review and COP climate finance tracks.
- **Partnerships:** Host an annual "Water Finance Matchmaking" digital event to maintain the pipeline between developers and investors.
- **Expand regional cooperation platforms.**
- **Implement digital water governance systems at scale.**
- **Studying key indicators including groundwater monitoring coverage, wastewater reuse rates, reduction in non-revenue water, area under NBS, and total investment mobilized.**

V. Proposed Cross-Process Dialogue Areas

- I propose dialogue with section 4A "Adopting policy, regulatory frameworks and institutional mechanism in particular because there the international association of hydrological science". King Saud University (KSA), Council of Energy, Environment and Water (India). Further I propose dialogue with section 3A "Enhancing access to safe drinking water services for all" where we found the Centre for Community Health Research (India). I propose dialogue with Ministerial Parliamentarian, Local and Regional Authorities, Basin Authorities in the Asia Pacific area.
- Ministerial-Banker Roundtable: A high-level dialogue to align Finance Ministers and MDB CEOs on Direct Sub-Sovereign Lending and the "On-Lending" protocol.
- Joint Thematic Dialogue (Finance & Climate): Focusing on blending Climate Adaptation Funds with water loans to lower interest rates for "Green" infrastructure.
- **Regional Collaboration:** Pilot the *On-Lending* model in Africa and Southeast Asia, focusing on AfDB and ADB project portfolios. For example, countries such as Ethiopia are planting billions of trees each year and restoring ecosystems and watersheds, contributing to water, food, and energy security as well as climate resilience. This raises a key question: which financing mechanisms are being used to implement Integrated Water Resources Management (IWRM)?
- Forum region: Africa, Asia and Pacific and Arab Region.