Blended finance for climate resilience in WASH in India

Center for Water and Sanitation, CRDF – CEPT University



Impact of climate change on WASH

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The impacts of climate change on the WASH infrastructure are long-lasting and irreversible

Financing for climate resilient WASH



The World Bank estimates financing requirement of USD 114 billion globally per year to reach the SDG 6.1 and SDG 6.2 target. Blended finance models can help leverage private funding sources and offer a promising solution to mobilize investments.

Source: World Bank. The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene " (2016a).

Examples of blended finance for climate resilient WASH



There is emerging opportunities for mobilizing private and commercial finance for WASH sector across the value chain

Solar operated WASH services: Public Private Partnership

- Performance-based Public-Private Partnership (PPP) model that aims to set up a solar power plant at any WASH infrastructure.
- No upfront capital cost and payment only against units of electricity produced by the solar system.
- Private operator will undertake the financing of both capital expenditure (CAPEX) and operational expenditure (OPEX) costs.
- Additionally, private operator will handle the design, installation, and operations & maintenance (O&M) responsibilities for a period of 10-25 years.



Impact

 This significantly reduces carbon emissions. This approach not only cuts operational costs but also demonstrates how essential services can be decarbonized through renewable energy integration.

Access to Sanitation credit for individual household toilets

- Over 300 women of self-help groups (SHGs) in the city of Jalna, India accessed sanitation credit through banks/micro-finance institutions(MFIs) for construction of individual household toilets.
- The approach involved demand generation, mobilizing toilet loans from banks, overseeing toilet construction, and ensuring loan repayment.

Impact

- Success is now being scaled up by MAVIM with support from water.org. Over 3500 loans have been mobilized with loan amount of USD 0.5 million (INR 5cr) disbursed.
- Access to toilets is a crucial adaptation measure for climate change as it helps communities manage increasing risks of heatwaves, flooding, waterborne diseases, caused by extreme weather events.





Source: CWAS (2018), Mobilizing Sanitation Credit through Urban SHGs - A Case of MAVIM, Maharashtra, https://cwas.org.in/cwas-resources/mobilizing-sanitation-credit-through-urban-shgs-a-case-of-mavim-maharashtra

Citywide scheduled desludging: The case of Wai and Sinnar

PPP arrangement with Performance-Linked Annuity Model for Scheduled Desludging

- 3-year contractual arrangement between local governments and service providers
- Pay-for-results model with payments to private operators linked to the number of septic tanks desludged
- Sanitation tax implemented in conjunction with the property tax system, creating a predictable revenue stream
- Reserve fund created as safeguard against delayed payment



Impact

- Wai successfully completed 1st Round of scheduled desludging (4900+ properties) and has a new contract for Round 2. This model is being scaled up across cities in Maharashtra.
- **Reduction in emission (methane) will help in mitigation** with well-functioning septic tanks with regular desludging.
- Improved groundwater / river water quality
- Septic tank overflow is avoided during rainy season as they get desludged regularly helping in adaption

Source: CWAS (2020), Scheduled desludging services in Wai and Sinnar, https://cwas.org.in/cwas-resources/scheduled-desludging-of-septic-tanks-in-wai

Treatment using Hybrid Annuity Model (HAM) - Namami Gange

- Namami Gange India 32 STPs using HAM, with a Total value of USD \$ 1.4 billion
- 200 FSTPs planned using HAM in the states of Andhra Pradesh and Telangana
- Globally, for the first time World Bank has sanctioned USD 19 million guarantee to backstop GOI's payments for 3 HAM-PPP projects.

Source: CWAS-CEPT University (2018), "Hybrid Annuity Model (HAM) for Sanitation. Access at <u>https://cwas.org.in/resources/file_manager/hybrid_annuity_model_(ham)_for_sanitation.pdf</u>" National Mission for Clean Ganga Department of Water Resources, River Development and Ganga Rejuvenation Ministry of Jalshakti. Government of India 3rd sept 2020



Impact

- This project contributes to climate action by preventing untreated sewage discharge into the Ganges River, reducing greenhouse gas emissions from decomposing waste, while also protecting aquatic ecosystems and enabling treated water reuse and help reduce net freshwater extractions.
- Help in creating infrastructure that is climate resilient.

Reuse for thermal plant using a PPP Model – Nagpur, Maharashtra

- Mahagenco a thermal power plant firm in Nagpur, purchases sewage water from the Nagpur Municipal Council. The STP along with secondary and tertiary treatment are constructed, operated and maintained by private provider.
- Capital cost US\$28 million: Private provider- 54% of capital cost and O&M cost, Local government gave 46% of capital cost and land for STP. Private provider pays local government a fixed amount US\$ 2.25 million a year for 110 million liters a day of raw wastewater.

Impact

- The project reduces net freshwater extractions by the power sector, freeing up freshwater resources for other uses.
- Wastewater reuse significantly contributes to climate mitigation through its embedded carbon sequestration potential.



Source: MOHUA, "MAHAGENCO- Nagpur Municipal Corporation WasteWater Reuse Project at Nagpur",

Reuse by private industry - Anjar and Gandhidham

- A private industry partner, 'Welspun' reuses treated wastewater from the cities of Anjar and Gandhidham in their power plants, textile industry and gardens.
- It used a Design, Build, Finance and Operate (DBFO) model for this Sewage Treatment Plant.
- Cities receive a revenue of Rs. 62 lakhs per year at the rate of Rs. 0.4/KL for the raw sewage by Wellspun industries.

Impact

 In arid regions, reusing treated wastewater is crucial for climate resilience as it provides a reliable water source during intense droughts and heat waves, reducing the energy-intensive extraction of limited groundwater and preventing the depletion of precious freshwater resources that are already under severe climate stress.



*The respective ULBs ensure that Sewer generated by citizens is free from Industrial waste, hazardous material, prohibited and restricted material **Welspun Infrastructure Ltd and Technology Providing Partner Ion Exchange Ltd (Concessionaire).

*** Sewage Pumping Station other than GNP Facility, network of bulk transmission of sewage from Designated location to STP is operated by Concessionaire.

Municipal bonds and Green bonds for climate finance

Municipal Bonds

- Issuance of Municipal and Pooled Bonds worth USD 500 million in India (1997-2024)+ USD 21 million as incentive subsidy
- Most Municipal Bonds in India have been raised to finance water supply and sewerage projects.



- Raised capital for environmental and climate focused green projects
- The Government of India raised USD 1 billion the Sovereign Green Bonds January 2023
- Ghaziabad raised first municipal green bond for water and sanitation treatment infrastructure
- Indore raised a green bond to build
- largest solar plant for pumping and supplying water from Narmada





Retail investors

Institutional investors





Development of sewerage treatment systems

Source: SEBI (2023), Retrieved from SEBI database, available on https://www.sebi.gov.in/

Innovative approach of raising finance through green bonds and carbon credits - Case of Indore

Green Bonds



Green bonds over municipal bonds as it was easier to obtain carbon credits for a "green" project

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Prerequisite checklist helped with ready made data availability

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Carbon Credit Mechanism



Bundling of solar projects to obtain carbon credits

Verification and authorization through EKI

Selling of carbon credits worth INR 52 lakhs which is encashed for O&M of WASH solar project



- Currently, there is a voluntary carbon credit market in India..Gol plans to develop the Indian Carbon Market (ICM) where a national framework will be established to decarbonize Indian economy by pricing GHG.
- Bureau of Energy Efficiency, Ministry of Power, along with Ministry of Environment, Forest & Climate Change are developing the Carbon Credit Trading Scheme for this purpose.

Summary

- WASH sector is important from both mitigation and adaptation perspective of climate change.
 However, a significant amount of climate financing goes to energy sector and there isn't much funding available for the WASH sector.
- In India, WASH projects are mainly funded through public investment. The government has prioritized initiatives like Swachh Bharat Mission and Jal Jeevan Mission to provide safe sanitation and water supply to households. However, to meet the climate targets and SDGs by 2030, substantial investments are needed.
- Blended finance models can help leverage private funding sources and offer a promising solution to mobilize investments. These maybe through locally designed PPP projects as well as by supporting Green Municipal Bonds.
- It is equally important to build strong monitoring capacity and use emerging new technologies.

Thank you

For more information contact - cwas@cept.ac.in

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About us

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes actionresearch, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.



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