SANITATION AND WATER FOR ALL

Unlocking finance for water and sanitation with nature-based solutions

Case Study Snapshot

Summary

This case explores how nature-based solutions (NbS)[1] can provide cost-effective alternatives to conventional infrastructure while attracting diverse sources of funding for water and sanitation. Payments for environmental services (PES) and debt-for-nature swaps are mechanism through which one can invest in ecosystems that reduce future costs, extend infrastructure lifetimes, and mobilise new finance streams. Experiences from Freetown and El Salvador highlight the potential of NbS to reduce the water and sanitation finance gap.

1 IUCN's Definition of NbS: WCC-2016-Res-069: "Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

Background

Conventional "grey" infrastructure has traditionally dominated water and sanitation sector investments, but many countries face mounting costs alongside increasing environmental pressures. Nature-based solutions offer a complementary alternative that not only delivers water and sanitation outcomes but also strengthens climate resilience, biodiversity, and livelihoods. Protecting watersheds and restoring ecosystems help safeguard water quality, while measures such as constructed wetlands and rain gardens improve sanitation and reduce flooding, helping to break down organic matter, reduce pathogens, capturing run off and assisting with ground water recharge. With their multiple co-benefits, NbS also lend themselves for alternative funding mechanisms. Governments and partners are beginning to recognize the potential of NbS as an integral part of water and sanitation finance strategies.

Examples of finance mechanisms for NbS

A particularly prominent approach, tested and proven over the past two decades, is the use of **payments for environmental services** (PES). The Nature Conservancy and its partners have created water funds in more than 40 cities, including Freetown and other African capitals, managed by a range of partners, including local authorities[2]. These funds pool contributions from tourism, carbon credits, private sector water users and public sources, and channel them into coordinated actions to protect catchment areas. In Freetown, this mechanism is expected to increase the availability of water to households during the dry season, reduce sediment loads in rivers, extend the life of the Guma Reservoir and cut annual flood damages, together generating significant cost savings over the investment period in comparison to 'business as usual' scenarios modelled over a 30-year period[3].

Debt-for-nature swaps are a second mechanism, which allow countries to refinance debt on more favourable terms while directing resources towards ecosystem conservation. In 2024, El Salvador committed US$ 350 million over twenty years to watershed conservation in the Rio Lempa basin, in what became the largest conservation allocation ever made through a debt conversion transaction. By addressing watershed degradation, the initiative aims to reduce future damage costs while at the same time relieving debt pressures.

Valuing the potential investment opportunities is another important part of the process. One way of doing so has been developed by The TEEB Initiative (A UNEP program that aims to make the economic case for biodiversity conservation via developing clear methodologies for valuing natural ecosytems. This approach is governed by three principles. Firstly, it highlights the importance of recognising value, noting that cultural and societal appreciation, such as the protection of sacred groves, can safeguard ecosystems. Secondly, it emphasises demonstrating value in economic terms, which helps decision-makers account for the full benefits of nature, for instance by comparing the flood-control services of wetlands with the costs of artificial defences. Finally, it focuses on capturing value through mechanisms that integrate ecosystem benefits into policy and markets, such as payments for ecosystem services, tax incentives for conservation, or the removal of harmful subsidies[4].

Scale

Although the largest volumes of NbS investments are found in China, Europe and North America, spend in Africa on NbS for water security is rapidly rising to US$ 288 million in 2023. The example of Freetown illustrates how city-level schemes can be designed and sustained, while El Salvador demonstrated the potential of debt for nature swaps to be scaled to a significant level, with encouraging implications for long term national finance strategies. This is currently the largest funding commitment a country has ever made for conservation in a debt conversion transaction.

2 CRS 2020 Western Area Peninsular Water Fund Factsheet https://resilientwatershedstoolbox.org/sites/default/files/documents/library/Western%20Area%20Peninsula%20Water%20Fund_Factsheet.pdf

3 Pp. 47 Business case development for the Western Area Peninsular Water Fund, Sierra Leone - https://www.crs.org/sites/default/files/2025-03/wap_water_fund_economicreport_final_oct_2020.pdf

4 UNDP About TEEB https://www.unep.org/topics/teeb/about-teeb

These initiatives encompass not only the sums invested directly into conservation efforts, but as a part of a countries borrowing practices can achieve significantly higher amounts. For example, the total debt swap in El Salvador amounts to $1 billion in financing for El Salvador's repurchase of $1.031 billion of its outstanding bonds, and was brokered by JPMorgan Chase Bank, and J.P. Morgan Securities LLC . The transaction – funded by the U.S. International Development Finance Corporation (DFC) the Government of El Salvador and the Development Bank of Latin America and the Caribbean (CAF), involved $1 billion in financing for El Salvador's repurchase of $1.031 billion of its outstanding bonds at a discounted rate. Almost all of the savings generated by the transaction (across debt savings and reductions in debt servicing costs) will be applied over time to support conservation, water security, and ecosystem restoration in the Lempa River (Rio Lempa) watershed.

Evidence of results

The evidence to date highlights both cost savings and new finance flows. NbS help avert future expenditure on water treatment, flood protection and infrastructure replacement. They often generate higher returns than conventional approaches, on the basis that conservation activities are expected to cost less than the damage costs brought by inaction, therefore not only refinancing debt at a better rate but also multiplying the value of the investment over the long term – resulting in significant wider economic benefits alongside the environmental ones. The case of Freetown illustrated how the creation of PES mechanisms has mobilised resources from multiple sectors and relieved utilities of the full financial burden of catchment protection. Not only this, but engagement with local communities and environmental protection groups, as well as training and events undertaken by the fund[5], are highlighting the important connections between water catchment management and environmental protection. Debt-for-nature swaps, such as those in El Salvador, meanwhile, unlock new fiscal space while safeguarding essential ecosystems and illustrate how large-scale international finance transactions can be retooled to have direct benefit to sensitive ecosystems.

Key takeaways

Nature-based solutions represent a promising pathway for reducing the water and sanitation financing gap while building resilience to climate change and supporting biodiversity. The emerging evidence shows that NbS can unlock co-financing from a wide range of actors, including development banks, including the private sector finance, carbon markets and tourism, reducing reliance on public funding. When ecosystem services are assessed and valued in financial terms, they present a compelling investment case. Moreover, initiatives that bring together utilities, government agencies and local communities are proving more sustainable over the long run, and lower the long-term costs of inaction.

However, barriers do remain. In many contexts NbS are still regarded as add-ons rather than central components of infrastructure planning, often due to siloing and lack of coordination. Institutional capacity to measure and value ecosystem services is often limited. The key challenge going forward is to integrate NbS more systematically into water and sanitation planning.
Whatever the mechanism eventually chosen to be most suitable for a local context, in a first step NbS needs to be considered along with technological solutions – as these can provide cost-effective alternatives. Strong coordination with concerned stakeholders is essential, to identify the required actions to conserve and protect ecosystems that are providing essential functions to water and sanitation. The value of the ecosystem services should be assessed in financial terms to create evidence for a strong investment case.

5 NWRMA 2025 Regional Water Fund Training Strengthens Collaboration for Sustainable Water Management https://nwrma.gov.sl/regional-water-fund-training-strengthens-collaboration-for-sustainable-water-management/

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