

Nature-Based Infrastructure:

A powerful tool for women's empowerment in climate adaptation

Ronja Bechauf
September 2021

Women are hit hardest by climate change, yet they are key to effective and inclusive climate adaptation. How can nature-based infrastructure provide equitable benefits for women, and how can we value that contribution?

With the [latest report](#) from the Intergovernmental Panel on Climate Change warning of “unprecedented” changes to our climate, decision-makers are facing renewed calls to take firm and immediate action. As they weigh options for undoing the damage, a crucial step will be to empower women in climate adaptation efforts while marshalling the potential of our natural environment in the process.

Nature-based infrastructure (NBI) can and should be part of these efforts. The term NBI has grown in prominence in recent years, as governments and infrastructure investors look to use ecosystems for valuable infrastructure services, such as water filtration and flood protection. NBI also provides other benefits that can improve human health, support livelihoods, and enable climate adaptation and mitigation.

As this conversation evolves, an important issue that must be at the forefront is how to ensure women and girls play a leadership role in this NBI work, from project design to implementation, as well as in monitoring and evaluation.

Women have long faced a [greater burden](#) from a changing climate compared to men, which exacerbates many other inequalities. For example, in the Global South, women rely heavily on natural resources for their livelihoods. This is common in rural areas, where women are often responsible for gathering and supplying food for their households, along with collecting water and firewood for heating and cooking. With climate change making these tasks more labour intensive and time consuming, women are left with little time to access education and training, earn income, or develop new skills.



Moreover, women often face [barriers](#) to accessing and control over natural resources. Traditional roles and norms, land tenure systems, and a lack of capital tend to disadvantage women, restricting their access to the land, fisheries, and forests they depend on. Women are also underrepresented in environmental decision making and natural resources management, such as forest user groups, water user associations, and environmental policy-making. Due to these disadvantages, women are less likely to benefit from NBI projects.

There is another way, however: including women as powerful and dynamic advocates of climate adaptation, especially as NBI becomes a greater part of the solution.

How a mangrove forest is supporting the livelihoods of 100,000 people

The Saloum Delta is a prime example of how women's livelihoods are under threat from declining ecosystems—and how NBI can play a transformative role.

Located in Senegal, the delta is a tropical mangrove ecosystem that supports the livelihoods of more than 100,000 people. It filters water, provides fuelwood, prevents floods and erosion, and supports fish stocks. Based on our [assessment](#) using the Sustainable Asset Valuation (SAVi) methodology, its ecosystem services will be worth CFA 3.589 billion (EUR 5.47 billion) over 40 years.

However, climate change and unsustainable uses put pressure on ecosystems like the Saloum Delta, threatening the livelihoods of communities who depend on it. Data from the Convention on Biological Diversity (CBD) shows, for example, that in poor rural households, ecosystem goods and services can account for at least half of local [livelihoods](#). In some cases, that figure can go up to 90%. Restoring and keeping ecosystems like the Saloum Delta intact is not only good value for money but also key for protecting people's livelihoods. However, to make sure women and girls can access these resources, it is essential to also address restrictive social and cultural norms.

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How can NBI be a game-changer for women?

The Saloum Delta is just one example of how NBI can yield tangible benefits for communities. NBI projects can contribute to public health efforts by providing clean and safe drinking water, improved sanitation, and better nutrition. For example, our research in India has shown that [constructed wetlands](#) are a cost-efficient solution for wastewater treatment.

NBI projects can also improve access to water for household use, making it easier and faster for women to collect water—thus minimizing their exposure to health and security risks on the way.



These projects can also support and protect livelihoods. For example, our [SAVi assessment](#) in Belgium shows how planting trees and hedges on farmlands, also known as agroforestry, can lead to increased crop yields, provide biomass as an energy source, and help regulate the water cycle.

While these are impressive gains, they can be made even more successful and sustainable when gender considerations are a core component of NBI projects and strategies.

A recent [IISD report](#) illustrates why a gender-responsive approach toward ecosystem-based adaptation has proven benefits and shows how practitioners and policy-makers can implement it. For example, the authors present mounting evidence that integrating gender considerations in initiatives related to water and land management makes them more effective and sustainable.

Capacity-building strategies that are paired with NBI projects can strengthen women's roles as decision-makers and experts, especially when it comes to climate adaptation. For instance, training about afforestation and water management related to our recent [SAVi project in Indonesia](#) is designed to empower women in these fields. NBI projects also serve as a platform where women can network to share and exchange best practices and knowledge.

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How can we integrate gender issues in valuing NBI?

Given these lessons, our upcoming [NBI Global Resource Centre](#) aims to work closely with women stakeholders, integrate their knowledge, and train them in NBI and climate adaptation.

The NBI Global Resource Centre is led by IISD and supported by the Global Environment Facility (GEF), the MAVA Foundation, and the United Nations Industrial Development Organization (UNIDO). Its online site will launch later this year and will progressively aim to establish the business case for NBI by providing data, training, and sector-specific valuations.

Where possible, our valuations of NBI projects will pay close attention to gender-specific challenges and benefits. For example, the proportion of women engaged in agricultural activities may be higher, which means that they are more vulnerable to the risks of a variable climate, but at the same time, they can reap greater benefits from NBI, like agroforestry.

Incorporating gender considerations into infrastructure decisions is challenging because we often lack gender-disaggregated data. We will therefore start by including gender issues in our NBI valuations by considering questions such as:

- How are roles and responsibilities allocated in the local context?
- Do women and girls face specific risks, for instance, from natural disasters or air pollution?



- Do women and men have equal access to information and training for climate adaptation?
- Who would be employed in building and maintaining the NBI project, and who will benefit from it?

Where disaggregated data is available, we will include it in upcoming NBI valuations to provide more accurate estimates of how these projects can provide equitable benefits—and other gains not captured by traditional valuations—for women, especially in comparison with engineered, “grey-built” infrastructure.

The burdens of climate change and the benefits of adaptation are spread unevenly in society. Gender-responsive valuations will help us to understand these differences and design inclusive, beneficial NBI projects that support climate adaptation. Only by ensuring that gender issues are a vital component of this work can we create NBI that empowers those who need it the most and advances gender equality.

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Head Office

111 Lombard Avenue, Suite 325
Winnipeg, Manitoba
Canada R3B 0T4

Tel: +1 (204) 958-7700

Website: www.iisd.org

Twitter: [@IISD_news](https://twitter.com/IISD_news)



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