Expanding Finance for Nature-Based Solutions to Achieve Climate, Environment, and Community Goals

An Introduction for Green Banks and Community Lenders

Nature-Based Solutions Financing Working Group

Summary

Nature-based solutions (NBS) *(or* environmental infrastructure*) are projects that leverage nature to solve both human and environmental challenges. This introduction explores why and how green banks and other community-based lenders like community development financial institutions can invest in these types of ventures to achieve their climate- and community-focused missions.*

The federal government is investing billions of dollars in green banks and other community-based lenders such as credit unions and community development financial institutions (CDFIs) (henceforth referred to as *green banks and community lenders*). As a result, new green banks are being created, existing green banks are expanding or being operationalized, and community lenders are reexamining their scope to encompass new types of green investments. While many green investments have traditionally been focused on technology and renewable energy, it is a perfect time for these institutions to explore and consider nature-based solutions and environmental infrastructure as part of their strategies. Not only can nature-based solutions contribute to climate mitigation goals, they can also provide multiple climate resilience, biodiversity, and community benefits, making them an important component of impact-oriented financial strategies.

The newly announced Greenhouse Gas Reduction Fund (GGRF), specifically the $14 billion National Clean Investment Fund and $6 billion Clean Communities Investment Accelerator, could encompass investment in environmental infrastructure projects that contribute to climate change mitigation while simultaneously solving other problems such as remediating legacy pollution or mitigating flood risk. (To find out more about how nature-based solutions could qualify under the GGRF, see our related document, *Financing Nature-Based Solutions via the Greenhouse Gas Reduction Fund*.)

With the ever-growing impacts of climate change, new investments in climate mitigation and resilience are urgently needed, and costs rise the longer we wait. Nature-based solutions can meet multiple goals for communities, helping to reduce climate risks, support healthy communities, and enhance local economic development. However, similar to other climate solutions, increased investment is required to deploy them at the scale needed for impact.

WHY NATURE-BASED SOLUTIONS?

Nature-based solutions have the capacity to address some of society's greatest challenges (Table 1). If a financial institution is driven by a mission that includes equity, community and climate resilience, reduced greenhouse gas emissions, sustainable infrastructure, health, or workforce development, nature-based solutions can be an important part of the solution set. They can deliver many of the priorities identified in the GGRF: reducing and avoiding greenhouse gas emissions while also delivering benefits related to climate risks, training and workforce development, remediation of legacy pollution, and development of clean water infrastructure. Nature-based solutions project outcomes can include:

- **Equity:** Investments in nature-based solutions can be targeted to underserved communities that are most exposed to accelerating climate hazards, and thus have the most to gain. These projects can help address past environmental injustices through developing resilience against disasters, extreme heat, and pollution.
- **Reduction or avoidance of greenhouse gas emissions:** Forests, rangelands, agricultural fields, coastal wetlands, and other habitats have a significant capacity to store and sequester carbon and, over time, can have significant carbon drawdown potential.
    - The United States directly references carbon storage in forests, farmlands, and coastal wetlands as part of the climate solution set in its nationally determined contribution submitted to the United Nations Framework Convention on Climate Change (US Department of State 2021). In fact, most countries (90%) that submit naturally determined contributions explicitly reference nature as a part of their climate plan (WWF-UK 2021).
    - Virtually all current carbon dioxide removal (99.9% or 2 $GtCO_2$ per year) comes from nature-based mechanisms, including conventional management of land, afforestation, and reforestation (Smith et al. 2023).
    - A study published in *Science Advances* quantified the potential climate mitigation benefits of 21 conservation, restoration, and land management actions on natural and agricultural lands in the United States, finding a maximum mitigation potential of 1.2 Pg CO_2e/year (Fargione et al. 2018).

- **Reduced climate risk:** Natural areas, either alone or in combination with conventional built infrastructure, can reduce flooding, store water, reduce wildfire risk, and moderate temperatures in ways that provide multiple other community benefits (see Table 1). Green stormwater infrastructure such as bioswales and rain gardens can reduce community flooding, limiting impacts to roads, homes, and businesses; living shorelines can help support shoreline stabilization structures, protecting coastal infrastructure and property; and riparian vegetation can stabilize stream- and riverbanks, providing protection to nearby roads and waterways. These green infrastructure strategies can also store and sequester carbon.
- **Training and workforce development:** The implementation of nature-based solutions at scale requires training and expanding a new workforce, providing green jobs akin to those in the renewable energy sector (ILO et al. 2022; TRCP 2021a, 2021b; BenDor et al. 2015). It is estimated that many of these new jobs will be needed in rural areas (ILO et al. 2022).
- **Remediation:** There are numerous nature-based options that can supplement or replace more traditional pollution remediation and brownfield redevelopment techniques, including creation of wetlands, revegetation, and bioremediation (Song et al. 2019).
- **Water infrastructure:** Preserving and restoring habitats that can help filter drinking water is an important and successful form of environmental infrastructure (EPA 2023). Source water protection has also been shown to produce cost savings for communities that implement them (e.g., in New York City [Lloyd and Licata n.d.]; Price and Heberling 2018).
- **Health benefits:** Planting trees and maintaining tree cover, especially in urban areas, can help reduce air pollution that causes detrimental health effects while also mitigating extreme temperatures and the risk of heat-related health problems. In the United States in 2010, it was estimated that trees removed 19.2 million tons of air pollution and helped avoid 850 deaths and 670,000 cases of acute respiratory symptoms (Nowak et al. 2014; Iungman et al. 2023).

Many types of nature-based solutions, such as managing forests to support biodiversity while sustainably producing timber, using environmental infrastructure to control storm-water, or utilizing natural pest controls on farmlands have been practiced for decades, if not longer. As with any type of infrastructure, there is always evolution and innovation. Evidence on effectiveness, costs, and benefits for newer applications of nature-based solutions is still incomplete, but work is underway to fill the gaps.

Box 1. Tools Used to Finance NBS

Familiar financial products have been used to finance nature-based solutions. See examples below with links to more detail:

- A Forest Resilience Bond that attracts private investment for forest conservation and management and generates cash flow through payments by utilities for avoided water treatment costs and insurance companies for reduced wildfire risk.
- The Soil and Water Outcomes Fund, which borrows private capital to pay farmers to implement environmental and climate-friendly practices. Governments and corporations pay for the positive outcomes generated.
- A revolving loan fund to finance urban green stormwater infrastructure in Washington, DC, through the DC Green Bank.
- A Linked Deposit Program, run by the Maryland Department of the Environment, that helps encourage implementation of non–point source best-management practices to reduce pollutant loads in the Chesapeake Bay.
- The Rhode Island Infrastructure Bank's Water Quality Protection Charge program makes funds available to public drinking water suppliers for projects that protect drinking water sources, including purchase and protection of watershed lands.
- A bond issued by the Maryland Economic Development Corporation pays for both a new parking garage and a green waterfront in Annapolis, MD. Cash flow generated by the parking garage will help provide repayment for both projects.

FINANCING NBS IS POSSIBLE WITH EXISTING TOOLS

Financing nature-based solutions will not look identical to financing renewable energy, energy efficiency, or housing projects, but it will be similar, and we have viable models to work from (see Box 1 for examples). Many projects are able to generate repayment of investments through mechanisms such as harvest and sale of timber or other agricultural products, sale of carbon credits or other environmental market credits or offsets, payments for avoided capital or maintenance costs, payments for avoided risk of catastrophic events, or land leases. Creatively adapting and applying commonplace financing tools that green banks and community lenders already use (e.g., revolving funds, low-interest loans, guarantees, project finance, or bridge financing) is possible. Nature-based solutions projects do not currently benefit from mission-aligned capital (lower interest rates, forgivable loans, and others) from green banks and community lenders the way that renewable energy projects have been able to, but this could change.

Box 2. Green Banks and Community Lenders Act in Multiple Roles Applicable for NBS Projects

Role 1—Mobilizing debt and equity providers: The DC Green Bank helped create a $17 million capital stack from nine different sources to help make energy-efficiency improvements at a YWCA providing 84 rental units to low-income and vulnerable women.

Role 2—Matchmaking capital with viable projects: The New York Green Bank connected Level Solar, a local solar provider, to an investment of $20 million in tax equity from a division of U.S. Bank

Role 3—Providing bridge financing: The New York Green Bank provided a bridge loan of $45 million to Cypress Creek Renewables to support deployment of up to 228 MW of solar assets in New York, helping to increase efficiency and speed of solar project installations.

Role 4—Aggregating viable projects: The Connecticut Green Bank has pooled 32 energy-efficiency and solar photovoltaic projects from the state and bundled the collective revenue streams for sale.

Role 5—Providing sweat equity and technical assistance: The Chicago CDFI Collaborative helped identify and engage small-scale investors and owner-occupants to help preserve almost 600 housing units in low-income communities in Chicago.

FINANCING NBS IS POSSIBLE WITH EXISTING INSTITUTIONS

Innovative financial institutions like green banks and community lenders are well-equipped to play a role in financing nature-based solutions. The roles they play in these deals will look similar to what they already do for other types of projects (see Box 2) and could include:

- Mobilizing debt and equity providers
- Matchmaking capital with viable projects
- Providing bridge financing for federal and utility incentives
- Aggregating viable projects to create investable products to reduce transaction costs
- Providing sweat equity and technical assistance to enable deals that might not otherwise happen

Green banks and community lenders are designed to fill gaps in the financial marketplace and step into uncomfortable or perceived risky markets and make them more comfortable. They have a track record of making markets work where they haven't before (Coalition for Green Capital 2023). Using these institutions to finance nature-based solutions is no different.

POSSIBLE NEXT STEPS

We hope this primer is informative and useful for those interested in using green banks and community lenders to finance nature-based solutions. Ideas for additional activities that could facilitate scaling-up investment in nature-based solutions include the following:

- **Understand how nature-based solutions fit into green banks and community lenders' missions and charters:** While nature-based solutions projects already align with many impact-oriented financial institutions' missions related to climate, community, and equity, it may be helpful to make this connection more explicit by including nature-based solutions or environmental infrastructure in institutional mission statements or explicitly stating how these strategies help meet the existing mission (see Box 3).
- **Create a community of practice:** This community could build upon and link existing networks, connecting nature-based solutions experts with green banks and community lenders, and also connect green banks and community lenders considering nature-based solutions investments with those already working on these types of deals. Developing a robust network of institutions learning from one another about making nature-based solutions finance work will accelerate progress.
- **Enhance green banks and community lenders' capacity to do nature-based solutions work:** This may require hiring new staff, participating in a community of practice as described above, or enabling staff to attend specific trainings. This could include new courses for MBAs and community development lending trainings to educate the next generation of institutional lending staff.

The time to act is now. Green banks and community lenders are receiving increased national attention because of the prospects provided by the $27 billion dollar Greenhouse Gas Reduction Fund, and there appear to be opportunities to finance nature-based solutions through this mechanism. Nature-based solutions can help meet the community, climate, and environmental goals set out by impact-driven financial institutions, where financial tools exist to make investments in these projects happen at scale.

Box 3. Ways NBS Are Explicitly Acknowledged in Green Banks/Community Lenders' Mission and/or Programming

- In 2021, the Connecticut Green Bank incorporated nature-based solutions into its core model. This legislatively authorized green bank required action by the government to expand the bank's mission to explicitly include environmental infrastructure in its mandate and a specific fund to support such projects (Connecticut General Assembly 2021, Connecticut Green Bank 2021). The bank's mission is "to confront climate change by increasing and accelerating investment into Connecticut's green economy to create more resilient, healthier, and equitable communities." Additional context reads, "In 2021, the Green Bank's model was expanded to include new areas of environmental infrastructure, related to climate adaptation and resiliency, land conservation, parks and recreation, agriculture, water, waste and recycling, and environmental markets, including carbon offsets and ecosystem services" (Connecticut Green Bank 2023).
- The Rhode Island Infrastructure Bank's mission is "to actively support and finance investments in the State's infrastructure [...] Through its activities, the Bank fosters infrastructure improvements that create jobs, promote economic development and *enhance the environment*" (emphasis added) (RIIB 2023). While the mission does not explicitly call out nature-based solutions, a few of the bank's financing programs include direct reference to these project options, including the Water Quality Protection Charge, which makes funds available for drinking water suppliers to purchase watershed lands; the Municipal Resilience Program, which supports exploration of nature-based solutions to provide community resilience; and the Stormwater Project Accelerator, which calls out green infrastructure and nature-based solutions as eligible project types.

Table 1. NBS Solutions for Environmental Problems

Problem	NBS Example
Greenhouse gas emissions	• Conserving or restoring coastal habitats, forests, wetlands, and grasslands • Improved agricultural management, including cover crops, no-till, rotational grazing, and sustainable timber management
Urban heat and air pollution	• Green roofs • Urban trees and forests
Inland flooding and non–point source pollution	• Floodplain reconnection and restoration • Enhanced water storage in wetlands, forests, or farmland • Protecting or restoring riparian buffers • Sustainably managing forests, farms, and grazing lands
Stormwater and sewer overflow; urban flooding and pollution	• Green roofs • Rain gardens • Bioswales • Urban trees and forests
Shoreline erosion; tidal flooding; storm surge	• Protecting or restoring coastal habitats • Living shorelines
Wildfire	• Forest management • Greenbelts
Drought	• Clearing invasive plants • Protecting beavers • Water storage on agricultural fields
Crop loss from pests or poor pollination	• Planting pollinator habitats • Integrated pest management
Loss of culture or identity; loss of jobs; loss of recreational opportunities	• Conserving or restoring forests, wetlands, grasslands, and coastal habitats that provide recreation opportunities • Sustainable management of forests, fisheries, and agricultural lands that contribute to cultural identities and ways of life
Obesity, stress, and mental health challenges	• Green space creation • Neighborhood greening

Adapted from White House Council on Environmental Quality et al. 2022

Contributors: Who We Are

This primer was conceived by a group of academics, practitioners, financiers, and nature-based solutions investors dedicated to scaling up finance for these projects to help solve challenges facing people and nature. It was drafted at a workshop held in July 2023. Contributors include:

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Nicholas Institute for Energy, Environment & Sustainability

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