Nature-Based Climate Solutions as a
Key Component in Congressional Climate Policies

Executive Summary

- Climate change negatively impacts Americans' well-being, economy, and environment, with technological solutions on their own being insufficient in meeting mitigation and adaptation goals at both national and global levels.
- Nature-based climate solutions are cost-effective and essential strategies for creating more resilient communities and reducing the future impacts of climate change.
- Attention on, and investment in, these solutions are lacking, with more Congressional support needed to execute these well-understood strategies that benefit citizens and the environment.
- In order to reach our nation's net-zero carbon goals and prepare communities for the impacts of climate change in the near future, federal conservation programs must be expanded, in addition to the creation of more programs that support local- and state-level natural-solution initiatives that meet the needs and goals of their communities.

Description of Issue

The impacts of climate change on Americans' well-being, economy, and environment necessitate immediate, deep, sustained action in order to reduce further loss and damage.[1] While technological solutions, such as electrical grid updates, carbon capture, or even plant-based meat, are essential components of mitigation and adaptation strategies, they are insufficient in addressing the ecological damages that have contributed to and resulted from climate change and are often inaccessible to low-income communities. Nature-based climate solutions (NBCSs) must also be employed in order to create more climate-resilient infrastructures, in addition to reducing our greenhouse gas emissions and attaining our goal of keeping global warming below 1.5°C. However, global investment is lacking: in 2019, *less than 10%* of public funding went towards agriculture, forestry, land use, natural resource management, and coastal protection.[2] Public funding for NBCS-focused projects must increase to meet our climate targets and support American communities facing current and future climate change impacts.

Overview of Research

Nature-based climate solutions, also known as natural climate solutions, are actions to restore, protect, or sustainably manage environments in order to contribute to climate mitigation and adaptation efforts.[3] A study from the Proceedings of the National Academy of Sciences (PNAS) of the United States of America estimates that NBCSs makeup "over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2 °C".[4] NBCSs fit in all ecosystems, including urban spaces. They can be as simplistic as planting more trees in cities in order to capture more carbon and create more shade, reducing the urban heat island effect.[5] NBCSs can also be as ambitious as, for example, a coastal ecosystem restoration project, which would reduce storm surges, restore biodiversity, enhance fisheries, and, again, increase carbon sequestration.[6]

A key component of the research from PNAS is recognizing the *cost-effective* attributes of NBCSs, with investment from any level of governance having a profound and long-term impact on a community's resilience.

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[1] "AR6 Synthesis Report: Climate Change 2023". *Intergovernmental Panel on Climate Change*. 2023, https://www.ipcc.ch/report/sixth-assessment-report-cycle/.
[2] "Global Landscape Of Climate Finance 2019 - CPI". The Climate Policy Initiative, 2019, https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/.
[3] "Perspectives: Natural Climate Solutions". *The Nature Conservancy.* 2023, https://www.nature.org/en-us/what-we-do/our-insights/perspectives/natural-climate-solutions/
[4] Griscom, Bronson W., et al. "Natural Climate Solutions." *Proceedings of the National Academy of Sciences* 114.44 (2017): 11645-11650.
[5] Rahman, Mohammad A., et al. "Traits of trees for cooling urban heat islands: A meta-analysis." Building and Environment 170 (2020): 106606.
[6] "What Are Nature-Based Solutions | Global Program On Nature-Based Solutions For Climate Resilience". Global Program on Nature Based Solutions, 2023, https://naturebasedsolutions.org/what-are-nbs.

For instance, the Pointe au Chien Oyster Restoration Project, supported by National Oceanic and Atmospheric Administration (NOAA), engaged the Pointe au Chien tribe in Louisiana to create an oyster shell living shoreline. The creation of this living shoreline had numerous impacts that current tribe members and future generations will benefit from, including improved water quality, increased fish populations, and protection of several culturally important Tribal earth mounds near the site. It should also be noted that this living shoreline was less costly than conventional "hard" shoreline armoring techniques. A report from the World Economic Forum and McKinsey & Company estimates that projects which use NBCSs cost an average of $20 per ton of CO_2 in carbon sequestration and avoidance of further emissions, meaning a higher return on investment for stakeholders than solutions that solely employ technology. [7]

Current Policies and Programs

The Biden Administration has recognized that NBCSs are a key tool in achieving their climate, conservation, and equity goals, with explicit language for the protection and restoration of natural-based infrastructure in the American Jobs Plan.[8] [9] Several federal agencies provide grants and support for programs that tackle NBCSs, such as FEMA and NOAA.[10] Additionally, at the federal level, there are multiple plans and proposals that focus on tree planting, such as the Trillion Trees and Natural Carbon Storage Act and the Repairing Existing Public Land by Adding Necessary Trees (REPLANT) Act.[11] [12] At the state level, we can look to approaches such as the 30x30 strategy born out of California Governor Newsom's Nature Based Solutions Executive Order N-82-20. The California Natural Resources Agency coordinates the efforts of other state agencies and stakeholders in conserving 30 percent of state lands and coastal waters by 2030.[13] Programs under the Bipartisan Infrastructure Law have also given attention and funding to mitigation and adaptation programs; however, these initiatives lack the specific language for NBCSs and thus risk NBCSs being neglected as viable strategies.

Policy Recommendations

In order to meet the necessary targets to keep global warming below 1.5°C, and to reduce harm to American communities, federal conservation programs must be expanded, creating more ambitious nationwide goals that explicitly employ NBCSs. Future programs should allow for flexible, local- or state-driven projects with low costs and promote collaboration amongst landowners, agencies, tribes, and NGOs. Successful programs will create cross-sectoral connections, as the environmental disruptions caused by climate change cut across all sectors. Additionally, successful programs will engage those most knowledgeable of the land, including farmers, indigenous communities, and researchers across disciplines. Congressional appropriations in the coming years will be a key opportunity to ensure that these cost-effective programs at various levels will receive the funding they need to carry out their plans before 2030. Finally, future programs must set benchmarks and goals for tracking the adoption of NBCSs and quantifying their benefits in order to assess the impact on communities as well as on the nation's climate goals.

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[7] World Economic Forum, et. al. "Consultation: Nature and Net Zero", 2021, https://www3.weforum.org/docs/WEF_Consultation_Nature_and_Net_Zero_2021.pdf

[8] "Nature-Based Solutions Resources Guide" The White House, November 2022, https://www.whitehouse.gov/wp-content/uploads/2022/11/Nature-Based-Solutions-Resource-Guide-2022.pdf.

[9] "FACT SHEET: The American Jobs Plan". The White House, March 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/.

[10] "Funding Opportunities". U.S. Climate Resilience Toolkit. March 2023, https://toolkit.climate.gov/content/funding-opportunities

[11] 116th Congress 2020-2021: Trillion Trees and Natural Carbon Storage Act" https://www.coons.senate.gov/imo/media/doc/Trillion%20Trees%20and%20Natural%20Carbon%20Storage%20Act%20.pdf

[12] 117th Congress 2021-2022: Repairing Existing Public Land by Adding Necessary Trees Act (REPLANT)" https://www.agriculture.senate.gov/imo/media/doc/RYA21303.pdf

[13] "30X30". 30X30 California, 2023, https://www.californianature.ca.gov/pages/30x30.