NATURE: OUR BEST DEFENSE AGAINST CLIMATE CHANGE

THE ROLE OF NATURAL ECOSYSTEMS FOR MITIGATION AND ADAPTATION

Healthy natural ecosystems are crucial for a stable climate— the world's forests currently store more carbon than is in the entire atmosphere.[1] Yet deforestation contributes 11 percent[2] of global anthropogenic greenhouse gas emissions, more than all passenger cars combined. Halting tropical deforestation and degradation and allowing tropical forests to continue sequestering carbon and regrowing at current rates can provide at least 30 percent of all mitigation action needed to limit global warming to 2°C.[3] To harness this potential, our response to climate change must recognize the role of natural ecosystems in mitigating emissions.

Natural ecosystems are also among the most readily available and cost-effective tools for adapting to a changing climate. They provide critical ecosystem services, such as climate-resilient food sources and buffering of severe weather impacts. Measures must be taken to prevent the loss of our natural defenses to the impacts of climate change.

FORESTS HELP MITIGATE CLIMATE CHANGE

REDD+ provides an essential international mechanism for harnessing the mitigation potential of forests. REDD+ creates a financial value for forest carbon storage, offering incentives to governments to protect, restore and sustainably manage forests. This is an immediate mitigation solution that is ready for implementation, and is also highly cost-effective. Recent estimates show that—with certain policy signals in place—investments in tropical forests could yield 4.5 times as many emission reductions as an equal investment in reductions from within the EU.[4] Additionally, healthy forests enabled through REDD+ programs provide local communities with other benefits such as increased flood control, clean air and drinking water, and income generation opportunities from sustainable forest products.

NATURE HELPS PEOPLE ADAPT TO CLIMATE CHANGE IMPACTS

Around the world, climate change is exacerbating droughts, floods, heat waves and extreme weather events—and these impacts are expected to worsen in the coming decades. Already, nearly 800 million people are vulnerable to the impacts of climate change.[5] Harnessing the immediate potential of natural ecosystems to buffer those impacts is critical.

A promising adaptation approach that leverages the potential of ecosystems as a climate solution is ecosystem-based adaptation (EbA): the use of biodiversity and ecosystem services as part of an overall strategy to help people adapt to the adverse effects of climate change. EbA takes the form of conservation, restoration and the sustainable management of ecosystems that provide climate adaptation services, while taking into account the multiple social, economic and cultural benefits the ecosystems provide for communities. For example, EbA projects can increase the climate resilience of coastal communities by improving the health of coral reefs, which buffer against coastal erosion, and which provide the habitat for near-shore fisheries—a primary source of food and livelihoods.

MITIGATION & ADAPTATION IN COASTAL AND MARINE AREAS

Coastal ecosystems such as mangroves, seagrasses and salt marshes present solutions for both climate mitigation and adaptation. These ecosystems remove carbon from the atmosphere and store that carbon—often termed 'blue carbon'—in plants and sediments. Such ecosystems are incredibly carbon-rich: An acre of mangrove forest can sequester more than twice the amount of carbon as an acre of terrestrial forest.[7] Unfortunately, coastal ecosystems are being rapidly degraded and destroyed, resulting in up to 1 gigaton of annual CO_2 emissions, which is 10 percent of global carbon emissions from deforestation.[8]

Coastal ecosystem conservation has huge potential for reducing global carbon emissions through avoided destruction and degradation, and restoring these ecosystems provides additional mitigation benefits by harnessing their ability to efficiently sequester carbon from the atmosphere. Healthy mangroves and marshes also provide surrounding communities with climate adaptation benefits such as protection from storm surges and coastal erosion during extreme weather events.

WHAT IS NEEDED TO REALIZE THE FULL POTENTIAL OF NATURE AS A CLIMATE SOLUTION?

Strong policy

A strong policy framework is needed to encourage implementation of actions at the scale needed to truly realize nature's potential as a solution to climate change. Recognizing the social and economic value of nature-based solutions will require policies to drive cross-sectoral action at all scales, from local to international. Namely, the new global climate agreement should enable and include formal recognition for the vital role that nature plays in reducing emissions, sequestering carbon and enhancing resilience to the impacts of climate change.

Predictable and adequate financing

Adequate finance is crucial to achieve global climate goals and realize the full potential of nature to mitigate and support people in adapting to climate change, yet nature-based solutions have been underrepresented in global climate finance flows. Tropical forests represent 30 percent of global mitigation potential, yet in 2014 nature-based solutions received about 2 percent[9] of estimated global climate finance flows. Policy structures that enable predictable and adequate public and private funding flows for nature-based solutions are needed to encourage the implementation of tried, tested and proven measures such as REDD+, blue carbon and EbA.

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[1] Atmosphere contains ~720 Gt C (Falkowski, P. et al. 2000. The Global Carbon Cycle: A Test of Our Knowledge of Earth as a System. Science 290:291-296.); Forests contain 861 +/- 66 Gt C (Pan, Y. et al. 2011. A Large and Persistent Carbon Sink in the World's Forests. Science 333:988-993.).
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[3] (a) McKinsey & Company. 2009. Pathways to a low-carbon economy. McKinsey & Company.
(b) Le Quere, C., et al. 2013. Global Carbon Budget 2013. Earth Syst. Sci. Data Discuss., 6, 689–760 (averaged for 2003–2012);
(c) Grace, J., et al. 2014. Perturbations in the carbon budget of the tropics. Global Change Biology (data from 2005–2010);
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[5] DARA Climate Vulnerability Monitor. 2012.
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[7] Stecker, T. and ClimateWire. "Restoring mangroves may prove cheap way to cool climate." Scientific American. 31 July 2012.
[8] Pendleton, L., and D. Donato, et al. "Estimating global 'blue carbon' emissions from conversion and degradation of vegetated coastal ecosystems." PLOS ONE. 4 Sep 2012.
[9] Buchner et al. (2015). "The Global Landscape of Climate Finance 2015." Climate Policy Initiative.

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