



Global Climate Solutions Series Fact Sheet: Nature-Based Solutions

What are nature-based solutions?

The International Union for the Conservation of Nature (IUCN) defines nature-based solutions (NBS) as "actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits."

What types of activities constitute nature-based solutions?

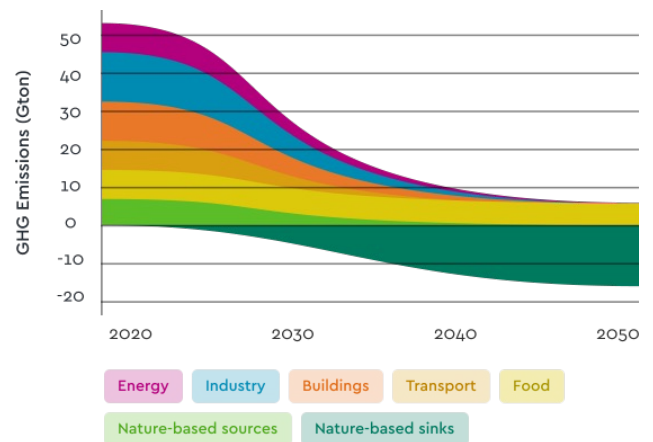
- **Ecosystem conservation** is a climate mitigation strategy, as preventing deforestation means preventing emissions. Our highest priority should be preventing the destruction of intact forests. Unfortunately, tropical forest carbon loss is estimated to have doubled over the past twenty years.
- **Ecosystem restoration** counts as carbon dioxide (CO₂) removal, because the new plants take carbon dioxide out of the atmosphere. We shouldn't just focus on tree planting, either, but on protecting carbon in ecosystems.

How do nature-based solutions store carbon?

Plants turn CO₂, water, and sunlight into sugar to store energy and build other molecules. When the plants die or are consumed, the carbon is often returned to the atmosphere as CO₂ or methane. However, if a plant does not decompose or get digested, some of that carbon will remain locked up as organic matter, adding to the carbon stock in the ground. Estimates for the carbon "drawdown potential" of NBS vary hugely, with strong evidence suggesting the potential is overestimated.

How much can nature-based solutions help with climate change?

The potential of nature-based solutions is still evolving and knotty, as our forests are impacted as the climate changes. Trees in the northern forests may start to grow faster. Climate change may undermine forests' ability to take in carbon. Overheated forests may soon release more carbon than they absorb. Investing in nature-based solutions will be essential among other climate solutions to reach net-zero by 2050.



Source | [Capital for Climate](#)

What are some essential considerations for nature-based climate solutions?

Durability and Permanence: we need the carbon drawn into nature to stay there for a meaningful period of time, but there are many threats to long-term forest storage, including deforestation, fires, droughts and changing respiratory processes of ecosystems due to warming temperatures.



Source | [Greenpeace](#)

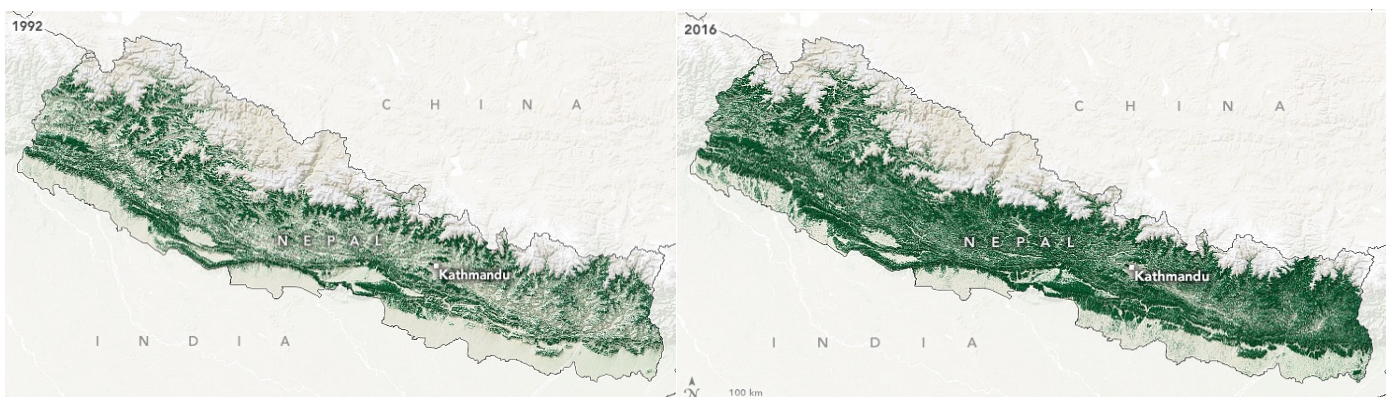
Indigenous and Local Rights: As much as one-third of all "irrecoverable carbon" is on land managed by Indigenous peoples and local communities. Lands managed by Indigenous peoples often have lower levels of deforestation, especially when Indigenous communities gain legal title to their land. It's also important to consider that some indigenous groups actively label NBS as another form of colonialism if projects are being driven by demand from "western" nations, relocating local and indigenous communities when they are the best stewards of nature.

Land: Countries' climate pledges rely on seemingly unrealistic amounts of land-based carbon removal. The total area of land needed to meet projected biological carbon removal in national climate pledges is almost 1.2 billion hectares—equivalent to current global cropland.

Key Takeaways:

- **NBS is not a panacea:** Planting new trees while cutting down old ones is not a viable climate solution, and there are serious justice considerations regarding land rights.
- **Be careful of greenwashing:** NBS (and especially tree planting) has found support in countries and groups that oppose other forms of climate action. A focus on NBS as a solution runs the risk of businesses not taking necessary action to rapidly reduce their emissions.
- **Address the drivers of deforestation and focus on root causes:** The most effective solutions for protecting forests could well be alternatives to adding ever more land for grazing cattle—like plant-based proteins and new precision fermentation agriculture.
- **The co-benefits of prioritizing forest and ocean conservation extend far beyond climate:** Forests provide a huge range of ecosystem services, including conserving the health and regulation of watersheds, providing food, fuel, timber, medicine, and other economic products, providing critical habitat for biodiversity and millions of humans, and offering aesthetic, recreational and spiritual benefits that cannot be easily quantified.
- **Any areas “protected” for nature need to include people:** NBS cannot view people and nature as separate—our most biodiverse landscapes have been inhabited and shaped by people for millennia—any NBS programs need to integrate people and not displace them, especially indigenous peoples and local communities.

Case Study: Nepal



Nepal forests cover, 1992 and 2016. Source | [NASA](#)

Starting some four decades ago, the Nepalese government began handing national forest land to local communities, entrusting volunteers with regrowing and stewarding nearby forests.

The move came in response to a widespread problem of trees being cut down for farmland—or just firewood. This, in turn, led to more frequent floods and mudslides. Now, the community-management strategy is paying dividends. Community-managed forests now account for more than a third of Nepal's forest cover, which has grown by about 22 percent since 1988, according to government data. Independent studies also confirm that greenery in Nepal has sprung back, with forests now covering 45 percent of the country's land.

This reforestation may partly have resulted from globalization and the fact that millions of Nepalis have left the country to find work elsewhere, shifting the economy away from agriculture—a phenomenon that may benefit forests in other parts of the world as well.

Nepal's approach of giving people a sense of ownership—coupled with an effort to replant with help from foreign aid—has also "earned praise from environmentalists around the world." The challenge has now shifted to safeguarding that progress against poachers, the logging mafia, and forest fires.

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