



Adapting to Climate Change: Terrestrial Ecosystems and People

Climate change is already impacting terrestrial ecosystems across the planet. Plants and animals are shifting their ranges due to changes in temperature and precipitation across a multitude of landscapes, from the tropics to the poles. Entire populations of individual species, such as lodge pole pine in western North America, are experiencing catastrophic collapse due to extreme events. While these direct impacts on biodiversity are tragic enough, there are also critical implications for human well-being associated with ecosystem decline.

The impacts of climate change increase existing pressures on ecosystems and have the potential to reduce services that ecosystems provide such as the provision of clean water, carbon sequestration and storage, agricultural production, storm buffering and flood regulation. People, especially the indigenous peoples and local communities that depend directly upon nature's services, are most directly impacted by the adverse effects of climate change.

The Way Forward:

Conservation International (CI) focuses on climate adaptation for biodiversity and ecosystems by creating sustainable relationships between people and nature that are resilient to changes in climate. We work with governments, communities, private corporations and civil society to help build adaptive capacity. We begin by assessing the vulnerability of communities and ecosystems to climate impacts, followed by identification of adaptation options and implementation based on best available science and local knowledge. Examples of this approach:

- **Conduct vulnerability assessments** for communities, biodiversity, and ecosystem services. This approach is scalable, from site to national level, and uses modeling to assess the impact on species and crop impacts, socio-economic surveys of community risks and adaptive capacities, cross-disciplinary experts' workshops, traditional knowledge and practical community experience.

- **Identify key adaptation responses** for species and ecosystems and link them to local, regional and national planning processes.
- **Support local communities and civil society** to enhance and implement locally appropriate adaptation practices.
- **Learn by doing:** Monitor effectiveness and use adaptive management techniques to continue to develop ways to forecast and respond to the effects of climate change on communities and ecosystems.

FIELD DEMONSTRATIONS: Ecosystem approaches to adaptation

- CI conducted a vulnerability assessment of climate change impacts on coffee-growing communities and ecosystems in the Sierra Madre de Chiapas, Mexico. Threats to livelihoods and the local environment of this mountainous region were identified, using results of crop suitability models to predict future *Arabica* coffee production zones together with traditional and scientific knowledge with the objective of recommending adaptation options. Results indicate that adaptive capacity for farmers and agrobiodiversity is enhanced by incorporating shade grown practices utilizing a diversity of tree types that can offer protection from increased frequency of hurricanes and through diversification of crops.
- In Madagascar, CI has joined with multiple partners in an assessment of adaptation needs for biodiversity and ecosystem services in both marine and terrestrial realms, with a strong emphasis on local livelihoods. The first phase of the project was a national, multi-stakeholder climate change vulnerability assessment for biodiversity, ecosystems and natural resources-dependent livelihoods led by CI in collaboration with several national and international organizations. The second phase is the creation of a comprehensive adaptation program to scale up forest-restoration activities, assess the feasibility of connecting critical riverine forest zones and support livelihood diversification options as a means of increasing the adaptive capacity of communities. This will facilitate range shifts of plants and animals, maintaining critical biodiversity and ecological processes such as water provision and carbon sequestration.
- In the Succulent Karoo, South Africa, CI is working with communal and private farmers on sustainable best practices for their agricultural activities with the aim of providing both conservation and economic benefits. A component of this engagement is focused on increasing the awareness of climate adaptation practices which can help conserve water, prevent soil erosion and build resilience to the impacts of climate change for farmers in this arid region.

OUR VISION

We imagine a healthy, prosperous world in which societies are forever committed to caring for and valuing nature, our global biodiversity, for the long-term benefit of people and all life on Earth.

OUR MISSION

Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the well-being of humanity.

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