

adaptation

No matter what is done to halt greenhouse gas (GHG) emissions causing climate change, the Earth already is warming.

Glaciers and ice caps are melting, affecting human water supplies and reducing habitat for Arctic species such as polar bears. Drier soils and more unpredictable rainfall are decreasing crop yields and threatening food security in some of the world's poorest regions. Resulting shifts in population densities and increased competition for resources threaten social stability, especially for the more than one billion people living in poverty.

The impacts of climate change will continue for centuries even if GHG emissions stopped today. Therefore, immediate and substantial efforts are needed to help human societies and the ecosystems that sustain them cope with their changing environment. This is known as adaptation – the response of humans and ecosystems to the present and future impacts of climate change, with the goal of reducing negative effects.

Integrated Approach

As people and species react to climate change, their actions in turn impact more people and species in a complex set of compounding chain reactions. To be effective, we must adopt an integrated approach to adaptation that includes traditional knowledge systems and addresses the fundamental linkages between biological diversity, ecosystem services and human communities. Such an integrated approach requires a strong and coordinated commitment from governments, multilateral organizations, development and conservation groups, the private sector, research institutions and local communities.

A key component of this integrated approach is nature-based adaptation – harnessing the power of nature and ecosystems for human adaptation to climate change while minimizing environmental damage. Nature-based adaptation recognizes the significant services that biodiversity and ecosystems provide to human communities, building resilience in the face of climate change. Incorporating nature-based adaptation into an integrated approach to adaptation can provide longer-term, more effective and more cost-efficient solutions.



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For example, changes in precipitation effecting the agricultural productivity of a region will naturally impact people, with resulting implications for biodiversity and ecosystems. A decrease in agricultural productivity would cause local communities to increase pressure on natural resources. Anticipating and responding to such pressures will help local communities preserve the ecosystem services and resources (fresh water, food, raw materials, pollination and soil regeneration) on which they depend.

Adaptation costs in the developing world are expected to range between \$28 to \$86 billion annually -- two orders of magnitude more than existing and expected adaptation resources. A significant increase in investment in adaptation is required to prevent loss of life, livelihoods and biodiversity. Effective solutions will require increased investment in adaptation actions from all sources – government programs, international mechanisms and private sector investment. Increases in both voluntary contributions and innovative mechanisms are necessary to achieve adequate, predictable and sustainable financing that is additional to current development funding commitments. Without appropriate investments dedicated to adaptation, the cost to human societies will be even greater than projected.

Conservation International and Adaptation

Conservation International (CI) believes adaptation solutions must be integrated to address the inherent connectedness of people, biodiversity and ecosystems. The CI mission of benefiting people through biodiversity conservation reflects the linkages between communities and ecosystem services.

This approach accepts that human behaviors will shift due to climate change, such shifts in behavior will impact ecosystems, and the impacted ecosystems will in turn impact human communities. Adaptation strategies and policies must allow for the inevitable changes caused by global warming in a way that supports biodiversity and human well-being and incorporates traditional adaptation practices of local communities.

That includes improving the resiliency of people and biodiversity to cope with climate change in a particular place and time, but also facilitating the ability of ecosystems and human communities to adjust to accelerating changes in environmental conditions and stresses. For example, warming conditions and rising sea levels in some regions will require species and people to move in order to survive. Effective adaptation strategies will anticipate and support such shifts.

CI also is committed to working with all partners to confront the pervasive challenge of climate change adaptation. CI already partners with many of the essential players needed to effectively address adaptation: communities, development organizations, governments, industry, research institutions and other non-governmental organizations.



The Way Forward

An effective global adaptation strategy requires:

- 1) Substantial and sustainable funding and investment that is additional to development assistance commitments and adequate to meet adaptation needs.
- 2) Integrated policies, planning and implementation that simultaneously consider human and ecosystem needs.
- 3) A science-based approach that includes ground-level knowledge, experience and perspective. Increased capacity for and access to research, particularly at the local/regional level, to understand the complex interactions involved.
- 4) Local and traditional knowledge leadership in decision-making and management for adaptation policies, planning and implementation. Flexibility to respond to local conditions and compounding effects.

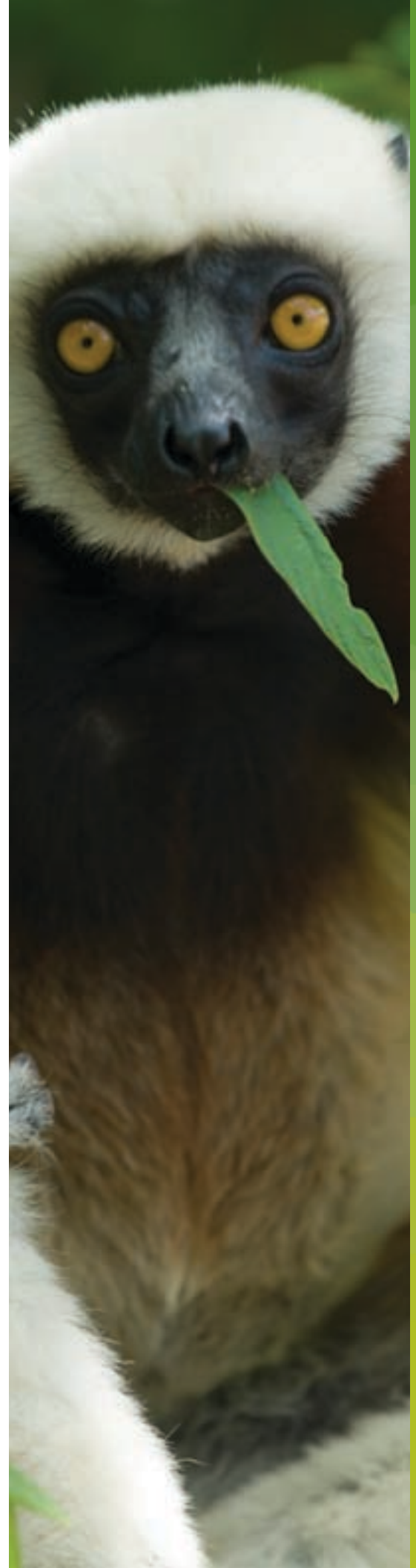
Field Demonstrations

The Madagascar Environmental Action Plan is a multi-donor/government program to protect forest corridors across the country and provide triple benefits for climate, communities and biodiversity.

Climate Benefits: These protected forest corridors absorb carbon dioxide and help regulate local climate. Forests help retain moisture and water flow – as climate changes these forests will buffer against decreases in rainfall, providing a more resilient system.

Community Benefits: Maintaining and re-building connectivity between forest fragments is preserving watersheds needed to safeguard agricultural productivity as climate changes. Hundreds of thousands of rice farmers depend on these forests for reliable water supply and for erosion control. In addition to direct employment opportunities, preserving these forests ensures that local communities will have food and water security - allowing farmers time to adapt to change.

Biodiversity Benefits: Almost all of Madagascar's endemic and threatened biodiversity is restricted to the last remaining natural forests. Protecting these forests provides climate benefits and ensures the survival of thousands of species. With large corridors, habitat connectivity can facilitate species range shifts in the face of future climate change.



Bolivia: Local perception and adaptation in highlands communities

CI assessed local traditional knowledge and perceptions on climate change impacts by carrying out workshops in rural communities in the highlands of Bolivia where a globally standardized methodology (GLORIA, www.gloria.ac.at) is being used to monitor climate change impacts on biodiversity.

Participatory methodologies and tools were used to assess local-traditional knowledge and perceptions regarding climate change adaptation. Bolivian scientists provided their research results through accessible presentations. Participants created a timeline to identify important climate events and changes and used clay models and paint to re-create glacier melting. Small groups evaluated climate change impacts on ecosystems, human health, productive systems and water availability. Participants identified, analyzed and summarized local adaptation measures already in use and established key activities, which will be the foundation of future adaptation plans.

Many rural communities are already adopting several adaptation measures, such as managing pastures to ensure grass regeneration and using traditional technologies for water management. Identifying and reinforcing local knowledge with scientific research may positively influence implementation of adaptation measures in other areas as well.

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