# NATURAL SOLUTIONS

## P . ec ed a ea e . e c a e c a e

**P . ec ed a ea a e a e . a a . . e ba e e . c a e c a e. T e a e e add e . e ca e c a e c a e b . ec a a ec . e a d ed c ee e a e ca b a e a d e e a . T e ca a e c e c e . c a e c a e ac b a a . e e e a ec . e e ce c e e de e d. T e a e e , ee a d c . e ec e a a . e add e . e c a e c .**

Protected areas can contribute to two main responses to climate change through:

### M a

Terrestrial and oceanic ecosystems play a significant role in the global carbon cycle, serving as major carbon stores and sinks, mitigating and reducing greenhouse gas (GHG) emissions from energy production and land use change.

**S e:** Protected areas conserve forests and other natural habitats, preventing the loss of carbon that is already present in vegetation and soils. At least 15% of the world's terrestrial carbon stock is stored in protected areas globally.

**Ca e:** Natural ecosystems capture more than 4.7gigatonnes of carbon (GtC) annually, mitigating and reducing GHG emissions from energy production, transport and land conversion. In many regions protected areas contain the only remaining large areas of natural habitats; many are important carbon sinks, sequestering carbon dioxide from the atmosphere.

### Ada a

**P . ec :** Protected areas maintain ecosystem integrity, buffer local climate, and reduce risks and impacts from extreme events such as storms, dgreen79lsea71ct:

## e e e c e

**Pro ec ed areas help o red ce he impac s of clima e change on . . lnerable comm ni ies.**

**R e , . ec ed a ea :** Protected areas can help to protect vulnerable communities and reduce the impact of all but the largest natural disasters as follows:

- **F d :** providing space for floodwaters to disperse and absorbing impacts with natural vegetation.
- **Landslides:** stabilizing soil and snow to stop slippage and slowing movement once a slip is underway.
- **Storm surges:** blocking surges with coral reefs, barrier islands, mangroves, dunes and marshes.
- **Drought and deserti f cation:** reducing grazing pressure and maintaining watersheds and water retention in soil.
- **F , e:** limiting encroachment into fire-prone areas, maintaining traditional management systems.

**I ca :** The integrity of ecosystems and ecological processes confer resilience and reduce vulnerability to natural disasters and climatic extremes. Expansion of protected area networks should consider other vital ecosystem services in addition to biodiversity. Recognition of their role in disaster reduction provides justification for creating new protected areas, in particular for mountains, steep slopes and coastal and inland wetlands.

## Ada a : P

Protected areas maintain essential ecosystem services that help people cope with changes in water supplies, fisheries, incidence of disease and agricultural productivity caused by climate change.

**C a e e:** Climate change is likely to exacerbate shortages of food, potable water and traditional medicines and to increase the spread of certain disease vectors. Food and water resource shortages will likely be unpredictable and sometimes severe, increasing the costs of humanitarian assistance for the most vulnerable.

**R e , . ec ed a ea :** Protected areas are proven tools for maintaining essential natural resources and services, thereby reducing the vulnerability of communities to the impacts of climate change:

- **Water:** both purer water and (especially in tropical montane cloud forests) increased water flow.
- **F , e , ce :** marine and freshwater protected areas conserve and rebuild fish stocks.
- **F d:** protected areas maintain water supplies for agriculture and protect pollination services and crop wild relatives to facilitate crop breeding; many provide sustainable and

Unfortunately this role is poorly recognized and their integrity remains at risk. Unless individual protected areas and national networks are well protected and effectively managed they will not be robust enough to withstand climate change and contribute positively to national and local response strategies.

Six key policy and management developments are needed for protected areas to function more effectively as a climate change response mechanism:

1. **M , e a d a e , . ec ed a ea :** particularly in ecosystems where much carbon is stored and/or captured or where important ecosystem services are under threat – particularly tropical forests, peat lands, mangroves, freshwater and coastal marshes as well as sea grass beds and other marine ecosystems.
2. **C ec , . ec ed a ea . a d ca e / ea ca e :** through management of natural or semi-natural vegetation or waters beyond protected area boundaries. This can include buffer zones, biological corridors and ecological stepping stones, which maintain connectivity, enhance ecosystem resilience to climate change at the landscape/seascape scale and increase the total amount of habitat under some form of protection.
3. **Rec . a d e e a . e , a e e a ce e , . ec ed a ea a a ed b . a e a e c e . ca c , d e e a d . e , a e ec , :** to encourage more stakeholders to become involved in declaring and managing protected areas as part of national and community climate response strategies.
4. **I , a a e e . . , . ec ed a ea :** to ensure that natural ecosystems and the services that they provide are recognized and not degraded or lost through illegal use or unwise management decisions.
5. **I c ea . e e e , . ec , , ca b . , e :** by strengthening protection and management practices to enhance carbon storage, for example to maintain old-growth forest, avoid ground disturbance or drying out of peat, and restoring degraded habitats within protected areas.
6. **Focusing some planning and management speci f cally . a a d ada . a eed :** including modification of protected area design and management plans, enhanced management of wetlands, fire and invasive alien species.

## Looking forward

Ecosystem-based approaches will be critical elements in national and local climate strategies, complementing energy reduction and investments in hard infrastructure and new technologies. Better understanding of the contribution that protected areas make to mitigation and adaptation and the availability of new funding mechanisms, such as the Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) and adaptation funds, could enable the expansion of more effectively managed protected area networks. Incorporating the role of protected area systems into national climate change strategies will enable governments to promote more sustainable development and reduce the loss and