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# Protected Areas for Risk Management in a Changing Climate

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# Western Indian Ocean 2004 – Sri Lanka



# IWRM - tropical storms and flooding in Guatemala/Mexico following Cyclone Stan, 2005

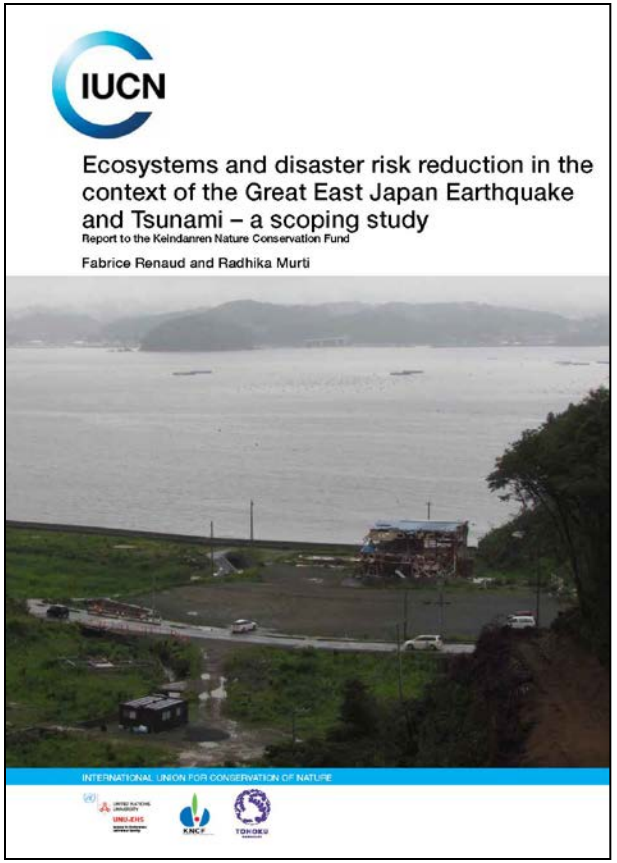
# Coastal Forests of Japan

- acted as filters for secondary debris (such as fishing boats)

- helped in saving lives (people were able to hold on to the trees)

- rice paddies that were protected by the coastal forests were less damaged when compared to exposed paddies

- in specific cases the forests, hills and rocky cliffs contributed to changing the tsunami path, redirecting waves and reducing wave energy



# Global Advocacy Efforts

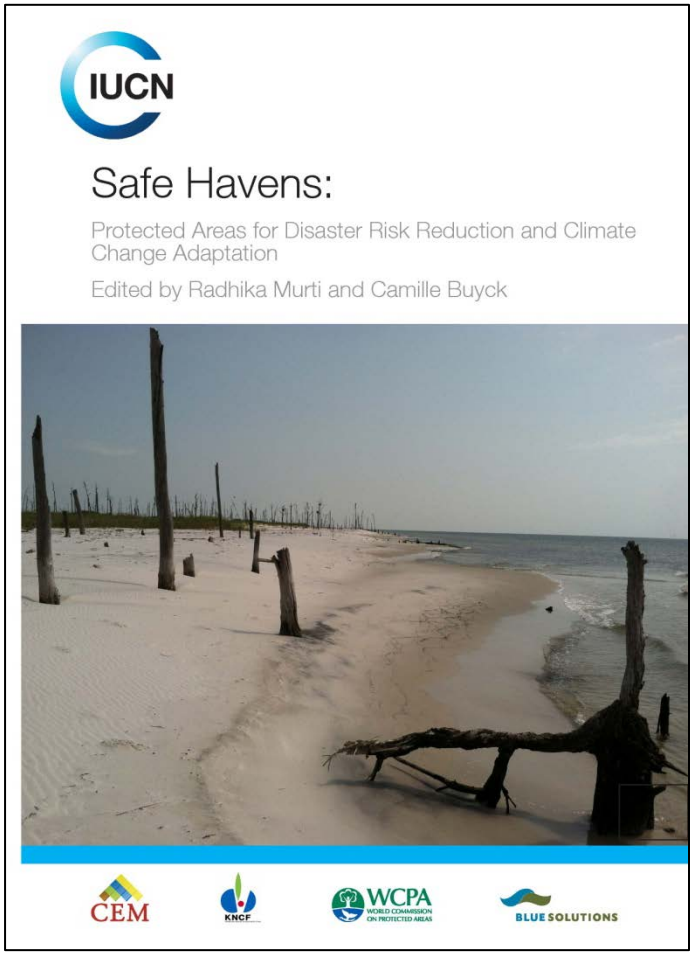
# Ecosystem Based Disaster Risk Reduction

*Sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience*

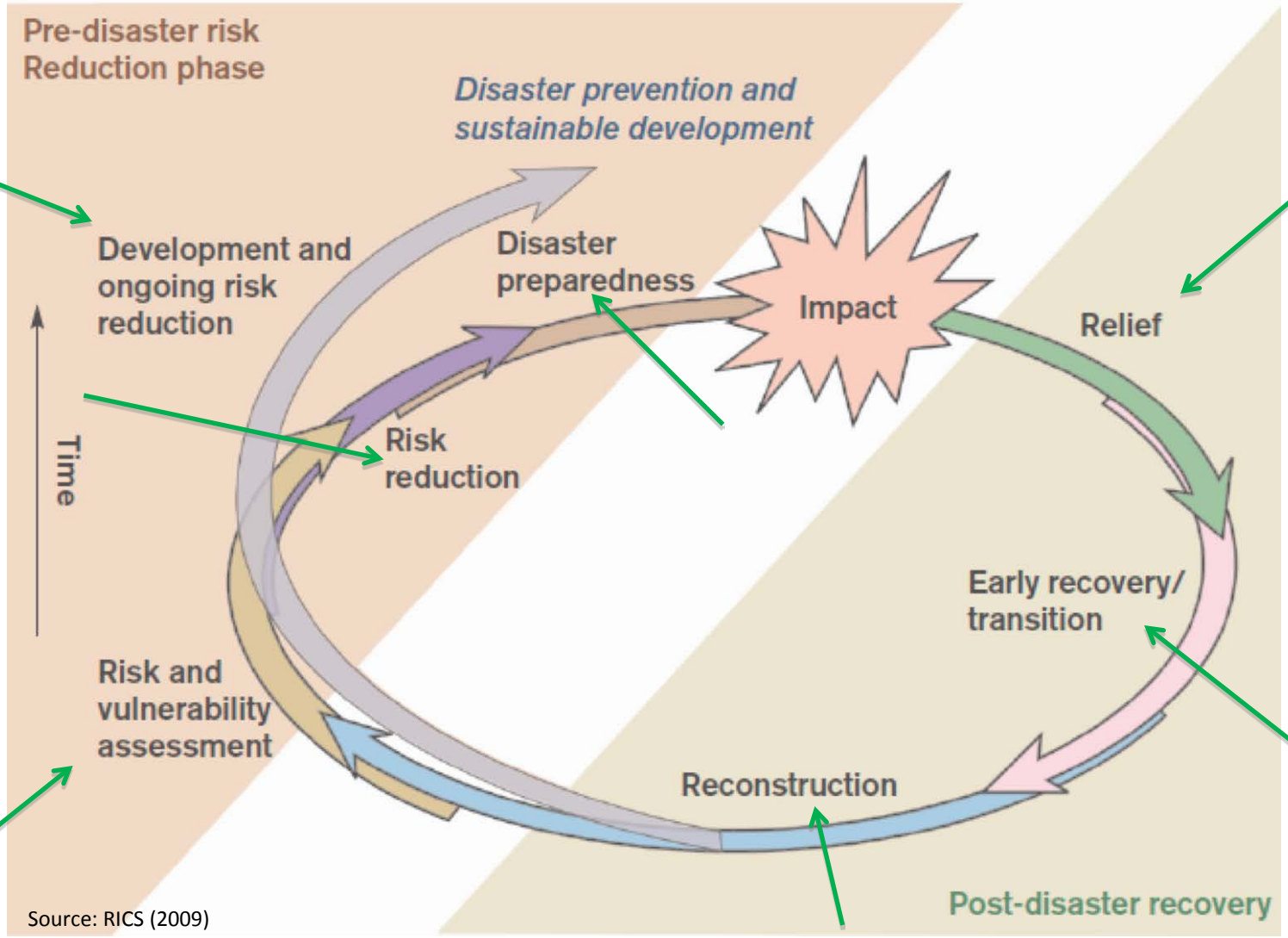
**(PEDRR, 2011)**

# Strengthening the Evidence Base

- 18 case studies from 17 countries
- scientific evidence
- policy challenges
- emerging practices
- demonstrating links between disaster risk reduction and climate change adaptation



# Disaster Management and Ecosystems




Source: RICS (2009)

## The role of Protected Areas:

### Flooding

- Provide space for floodwaters
- Absorb impacts of floods with natural vegetation
- Block sudden storm surges and sudden incursions of sea water (for coastal and marine ecosystems)

### Landslides and Avalanches

- Retain natural vegetation that helps to stabilize soil
- Tree crowns reduce the build-up of snow that triggers slippage
- Slow the movement and extent of damage once slippage is underway

## The role of Protected Areas:

### Drought and Desertification

- Reduce pressure (especially grazing pressures) on land and thus reduce or slow down desert formation
- Maintain populations of drought resistant plants to serve as emergency food during drought

### Fire

- Limit human encroachment into the most fire-prone areas
- Maintain traditional cultural management systems that apply ecologically sound and safe fire use and wildfire control
- Protect intact natural systems with associated natural fire regimes that ensure short- to long-term ecosystem stability

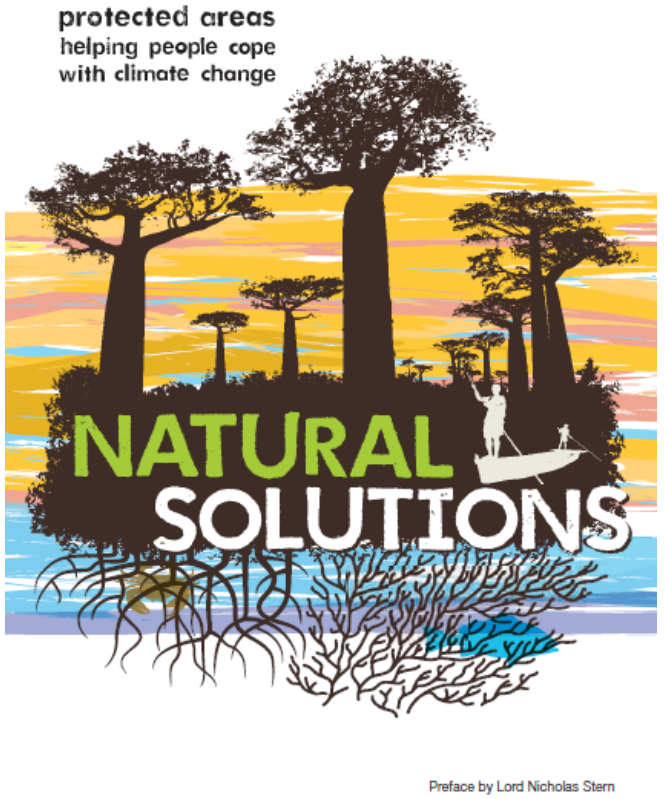
## The role of Protected Areas:

### Earthquakes

- Prevent or mitigate against associated hazards especially landslides and rock falls
- Provide zoning control to prevent settlement in the most earthquake prone areas

### Climate Change

- Mitigate climate change-induced hazards and other extreme events, such as more frequent or intense flooding, droughts, wildfires, and worsening storm surges



# Multiple benefits!

Biodiversity

Economy

National & Community pride

Tourism & Recreation

Research & Education

Cultural & Traditional attributes

# Do We Have an Economic Case?

| Ecosystem | Hazard | Hazard mitigation value (US$) |
|---|---|---|
| Coral reefs (global) | coastal | 189,000 per hectare/year |
| Coral reefs (Caribbean) | coastal | 700,000– 2.2 billion per year (total value) |
| Coastal wetlands (United States) | hurricane | 8,240 per hectare/year |
| Coastal wetlands (United States) | storms | 23.2 billion per year (total value) |
| Luzňice floodplain (Czech Republic) | floods | 11,788 per hectare/year |
| Muthurajawela marsh (Sri Lanka) | flood | 5 million per year (total value); 1,750 per hectare/year |

(PEDRR 2011)

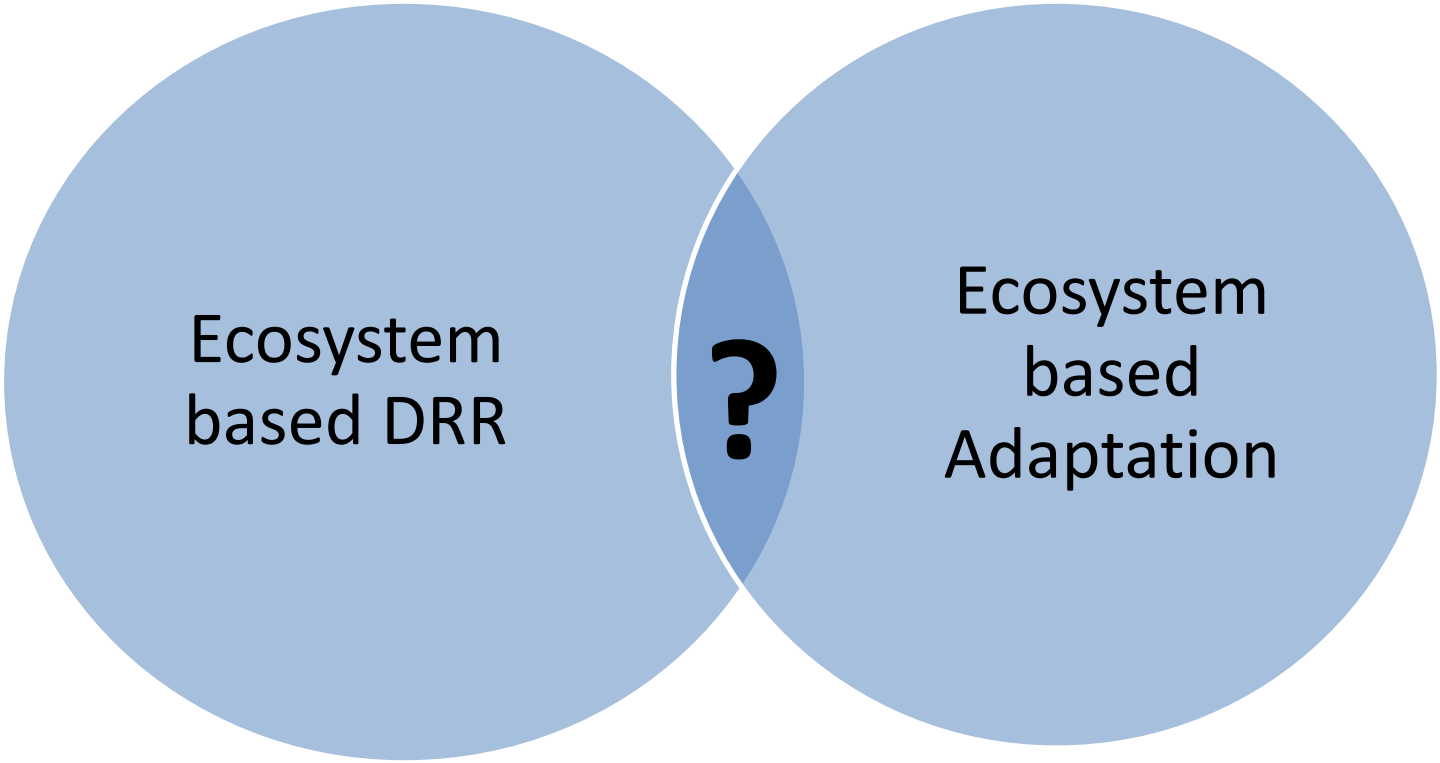
# Disasters and Climate Change

- Disasters are increasing in magnitude and frequency
- Weather variability brings about new/sudden challenges
- Pre-disaster conditions determine extent of impact and these conditions are affected by climate change effects

# Ecosystem based Adaptation

- *Ecosystem based Adaptation – the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change* (CBD, 2009)

# Integrated Approaches



# Why Integrated Approaches for DRR and CCA?

| DRR | CCA |
| --- | --- |
| continues to be reactive | proactively focuses on future |
| preparedness continues to focus on preparing for the looming disaster NOT on reducing risks, including underlying risks | CCA focuses on reducing longer term underlying risks to cope with future changes |
| Response and recovery do NOT focus on building back better | Principles of climate resilient development and planning can facilitate building back better |
| Slow onset hazards are often overlooked/under-resourced | Provides an opportunity to reduce the risks of slow onset hazards |

# Why Integrated Approaches for DRR and CCA?

| DRR | CCA |
| --- | --- |
| Focuses on hazard management | Does not take into account immediate and short term hazards |
| DRR provides a concrete entry point, despite uncertainties surrounding CC | May find it challenging to convince key stakeholders to invest in CCA |
| These mechanisms exist in DRR, much to learn from | Currently establishing local to global policy, practice and funding mechanisms |

# Let's do this Together!

## JOURNEY TO HUMAN SECURITY

| DATE | TIME | LOCATION | TITLE | DESCRIPTION |
|---|---|---|---|---|
| FRIDAY November 14th | 11:00 12:00 | HALL 3B2 | Protected areas to support human life: food, water and disaster risk reduction | This opening session for the Stream on Supporting Human Life will emphasize the socio-economic contribution and environmental benefits of protected areas for food water and disaster risk reduction. |
| | 13:30 15:00 | Playfair Room 1 | From risk reduction to resilience: New opportunities for protected areas | This workshop will discuss global to national policy coherence needed for managing protected areas to reduce risks from disasters. |
| | 15:30 17:00 | Hub 2 | Climate change adaptation and mitigation actions to enhace food security and livelihoods | This session will present and discuss the effects of climate change on food security, water management and disaster risk reduction in protected areas, including examples from Chile, South Africa, Australia and Canada. |
| SATURDAY November 15th | 08:30 10:00 | Playfair Room 1 | Nature-based solution for disasters: how can science better inform policy-making? | Using case studies from countries like Australia and Japan, this session discusses importance of science-based decision making and highlights existing knowledge gaps for protected area management strategies for disaster risk reduction. |
| | 10:30 12:00 | HALL 3B2 | Nature-based solutions for disasters: lessons from practices on the ground | This session will explore opportunities, challenges and enabling factors for implementing eco-DRR from various countries, including Guatemala, Nepal, China and Nigeria. |
| | 12:00 13:30 | HALL 3B2 | Capacity needs for Ecosystem-based Disaster Risk Reduction: what's available and what's needed? | It is necessary to enhance our knowledge and understanding of how to operationalise eco-DRR, what the policy gaps and opportunities are and what are the thresholds that can be used as safeguards when promoting eco-DRR. |
| | 13:30 15:00 | HALL 3B2 | Can protected areas reduce risks? Case studies from around the world | Selected case studies from Uganda, USA, Australia and The Phillippines will be presented in launching IUCN's new publication, *Safe Havens: Protected Areas for Disaster Risk Reduction and Climate Change Adaptation.* |
| MONDAY November 17th | 08:30 10:00 | Hub 2 | Preparedness and recovery from disasters in protected areas | This session will discuss case studies on ecological impacts of disasters on Protected Areas from Australia, China, South Africa and Japan. |
| | 10:30 12:00 | Hub 2 | Developing guidelines on protected areas management for disaster-risk reduction | A draft guideline on Protected Area management for DRR will be developed jointly by the Ministry of Environment of Japan and IUCN WCPA. In this session, key elements and ideas for content and scope of the guidelines will be solicited. |
| | 13:30 15:00 | Playfair Room 1 | Can green and grey infrastructure work together? | This session will look at examples of integration of green and grey infrastructure as a solution for disaster risk reduction using cases from Japan, Australia, Vietnam and Peru. |
| TUESDAY November 18th | 08:30 10:00 | Playfair Room 1 | Marine Protected Areas as solutions for resilience | Examples presented in this session will underline the role that MPAs play in increasing resilience for livelihoods, food security, disaster risk reduction and healthy watersheds. Presentations from France, Guatemala, Mexico, the Solomon Islands, Madagascar and Mauritania will be shared. |
| | 10:30 12:00 | Playfair Room 1 | Nature-based solutions for disasters: a new horizon for protected areas | This concluding session will summarize the key issues discussed in the DRR sub-stream and will share emerging ideas and ways forward for integrating DRR and PAs management. Final inputs and follow up suggestions will also be collected from the floor for The Promise of Sydney document. |


# IUCN World Parks Congress

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Sydney, Australia