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Integrating climate change adaptation and disaster risk reduction through ecosystems: opportunities, co-benefits and unintended side effects

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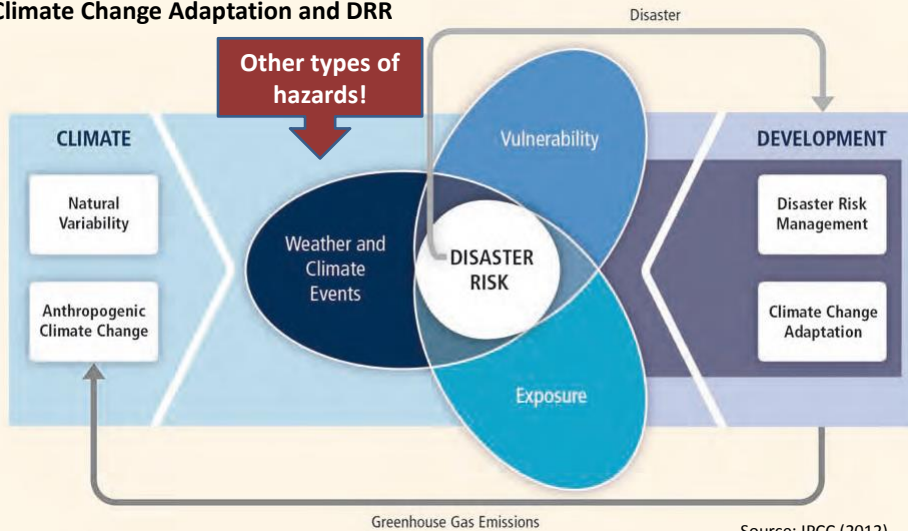
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Linking CCA and DRR

Climate Change Adaptation and DRR



Comparing CCA and DRR

Climate change adaptation

Type of hazards:
Hydro-met, climatic events

Time frame:
long-term

Actors: UNFCCC, national adaptation committees

Disaster Risk Reduction

Type of hazards:
Climatic and non-climatic

Time frame:
immediate to medium term

Actors: UNISDR, civil protection/
humanitarian assistance



Ecosystem-based DRR/CCA

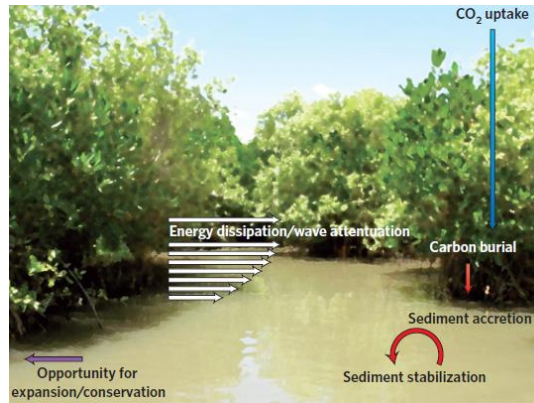


Ecosystem-based DRR/CCA is the sustainable management, conservation, and restoration of ecosystems to reduce disaster risk and adapt to the consequences of climate change, with the aim of achieving sustainable and resilient development

Eco-DRR/CCA and Examples of Ecosystem Services



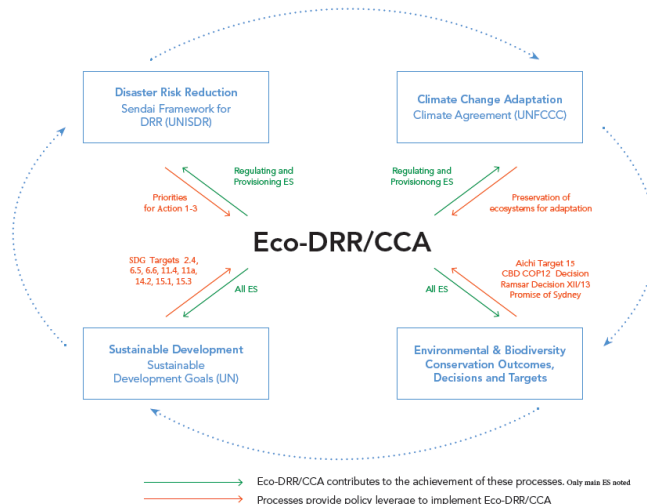
- **Regulating services**
 - Global/local climate regulation
 - Water flow regulation
 - Erosion regulation
 - Environmental hazard regulation
- **Provisioning services**
 - Fish and seafood
 - Timber
 - Wildfood
- **Cultural services**
 - Recreation & tourism
 - Cultural heritage



Through Eco-DRR/CCA one can plan a restoration project of a coastal area by accounting for both DRR and CCA objectives (e.g. Species diversity)

Source for the figure: Duarte et al (2013): The role of coastal plant communities for climate change mitigation and adaptation. *Nature Climate Change* DOI: 10.1038/NCLIMATE1970

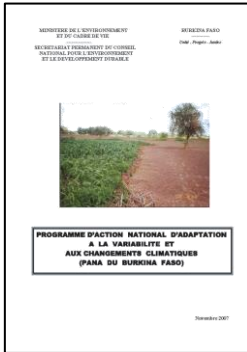
Opportunities for integration: Eco-DRR/CCA and major international agreements



Source: Renaud et al. (2016) – in Press

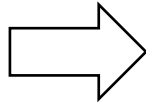
Unintended consequences (indirect)

National Adaptation Program for Action



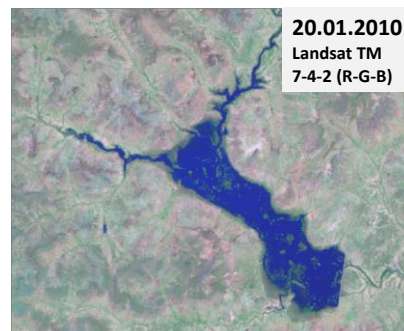
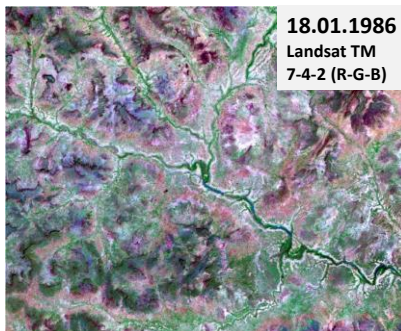
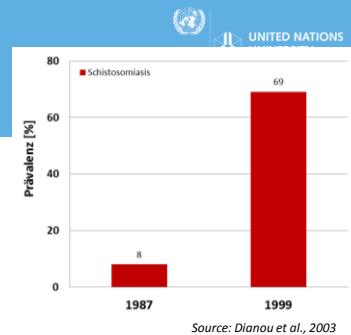
Sectoral adaptation practices

- (i) Water resources and sanitation
- (ii) Agriculture,
- (iii) Livestock farming, and
- (iv) Forestry and biodiversity



Impact of increased amounts of stagnant water

- Impact of dam construction (and more generally of increased stagnant water) on schistosomiasis
- Prevalence in Burkina Faso (region Sourou):
1987 (before dam construction): 8%
1999 (after dam construction): 69%



What is needed to implement Eco-DRR/CCA?

- ✓ Understanding ecosystem functions and resource use
- ✓ Assessing current and future risks - multi-hazard perspective!
- ✓ Policies and regulations
- ✓ Working across sectors and institutions
- ✓ Opportunity mapping for Eco-DRR/CCA
- ✓ Creating the right incentives
- ✓ Capacity development
- ✓ Using the right expertise



The Partnership for Environment and Disaster Risk Reduction



Asian Disaster Preparedness Center (ADPC) • Council of Europe • Global Fire Monitoring Center (GFMC) • Global Risk Forum • International Union for the Conservation of Nature (IUCN) • ProAct Network • Stockholm Environment Institute (SEI) • The Nature Conservancy (TNC) • UN International Strategy for Disaster Reduction (UN/ISDR) • United Nations Development Programme (UNDP) • United Nations Educational, Scientific and Cultural Organization (UNESCO) • United Nations Environment Programme (UNEP) • United Nations University-Institute for Environment and Human Security (UNU-EHS) • Asian University Network of Environment and Disaster Risk Reduction (AUNEDM) • Helvetas • World Wide Fund for Nature (WWF) • Convention on Biological Diversity (CBD) • Ramsar Convention on Wetlands • World Business Council for Sustainable Development (WBCSD) • International Institute for Sustainable Development (IISD) • Global Network of Civil Society Organizations for Disaster Reduction (GNDR)

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THANK YOU!



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