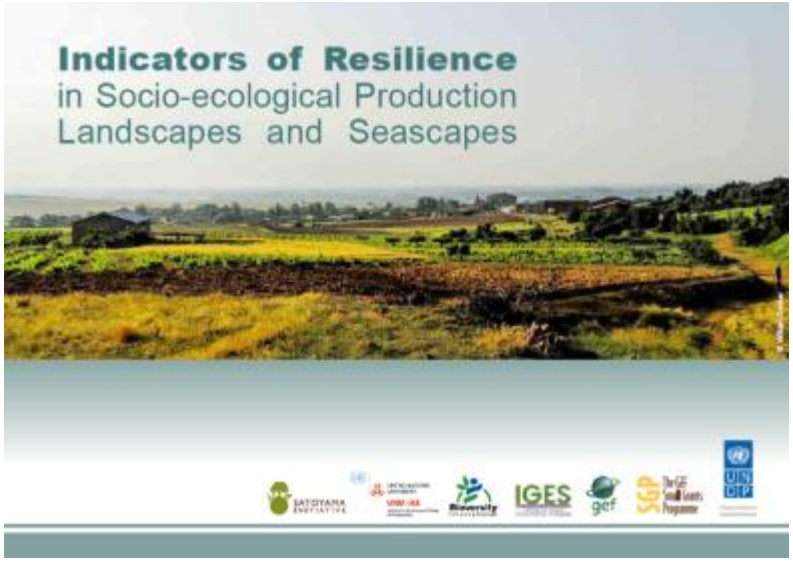
Indicators of Resilience in Socio-ecological Production Landscapes and Seascapes

- 20 indicators of various aspects of resilience
- Collaboration between Bioversity International, UNU-IAS, IGES and UNDP
- Field-tested and implemented in more than 30 countries



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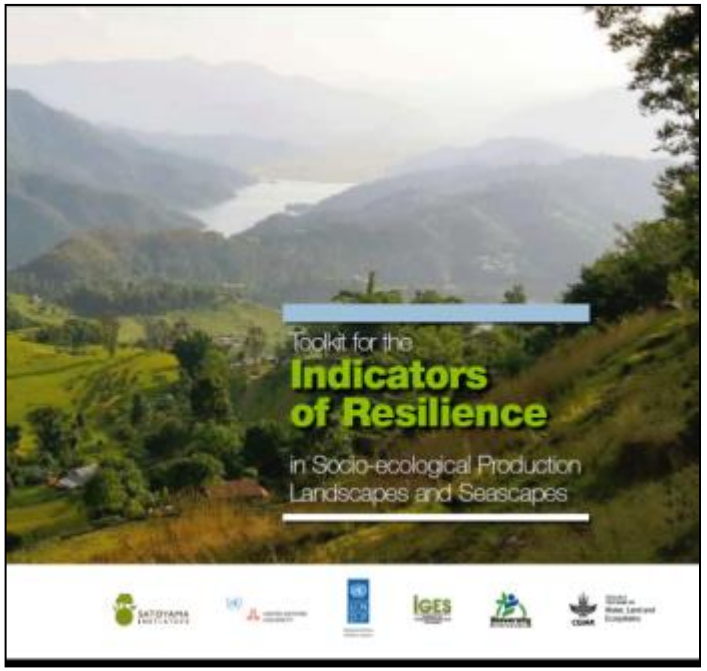


Toolkit

Indicators of Resilience in Socio-ecological Production Landscapes and Seascapes

- Landscape/seascape diversity and ecosystem protection
- Biodiversity (including agricultural biodiversity)
- Knowledge and innovation
- Governance and social equity
- Livelihoods and well-being

- Example: Landscape/seascape diversity and ecosystem protection

(4) Recovery and regeneration of the landscape/seascape

- The landscape or seascape has the ability to recover and regenerate from environmental shocks and stresses.
- Examples:
  - Pest and disease outbreaks;
  - Extreme weather events such as storms, extreme cold, flooding and droughts; Earthquakes and tsunamis;
  - Forest fires; and
  - Land use changes.

- Example: Landscape/seascape diversity and ecosystem protection

(4) Recovery and regeneration of the landscape/seascape

- Does the landscape or seascape have the ability to recover and regenerate after extreme environmental shocks and stresses?
  - (5) Very high (Very high ability to recover and regenerate)
  - (4) High
  - (3) Medium
  - (2) Low
  - (1) Very low (Very low ability to recover and regenerate)

- Example: Knowledge and innovation

(9) Traditional knowledge related to biodiversity

- Local knowledge and cultural traditions related to biodiversity are transmitted from elders and parents to young people in the community.
- Examples:
  - Songs, dances, rituals, festivals, stories, local terminology related to land and biodiversity;
  - Specific knowledge about fishing, crop planting and harvesting, and the processing and cooking of food;
  - Knowledge included in school curricula.

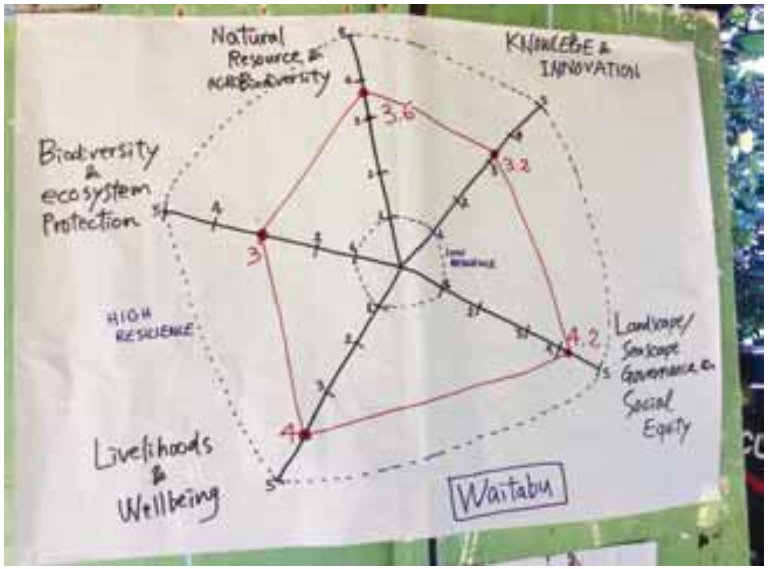
- Example: Knowledge and innovation

(9) Traditional knowledge related to biodiversity

- Are local knowledge and cultural traditions related to biodiversity transmitted from elders and parents to young people in the community?
  - (5) Very high (Local knowledge and cultural traditions are transmitted to young people)
  - (4) High
  - (3) Medium
  - (2) Low
  - (1) Very low (Local knowledge and cultural traditions are lost)

- Resilience assessment workshops

- Discussion of scoring results



- Example: Lake Tabalak, Niger

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Project	Grantee (CBO/NGO)	Description
Recovery of Degraded Land and Removal of Invasive Plants in the Lake Tabalak region	Youth Group Hadin Kan MATASSA	The project's goal is to protect the lake to help reduce siltation and eradicate the invasive plant species Typha australis and Ipomoea erecta. The project's main activities are planting trees, removal of invasive plants, facilitation of village meetings, production of a documentary film and the production and distribution of other media.
Restoration of the ICHIRIFAN Dunes	Action Groups for Local Development NGOs (AGDL)	The project consists of dune restoration and environmental education that can improve living conditions for populations affected by the impacts of climate change. By reforesting 70 ha of treated sand dunes, the lake will be more protected from siltation.
Recovery of Fish Populations and Removal of Invasive Aquatic Plants	Cooperative of Fishermen of Tabalak	The strategic approach of this project involves the mobilization, participation and effective empowerment of fishing communities in the project implementation. The lake will be repopulated with species such as Lates niloticus and Bagrus bajad to rehabilitate biodiversity and generate income for fishermen and fishmongers.
Restoration of Degraded Land and Removal of Invasive Species in the Lake Tabalak Region	Solidarity and Local Development (SDL TIKBALANA)	The project aims to protect the lake against siltation through the restoration of 75 ha of degraded land by building anti-erosion benches, planting trees and cutting weeds of invasive plants such as Typha australis and Ipomoea erecta. The recovery of these lands will also enhance fodder availability and contribute to restoration of vegetation.
Agropastoral Regeneration Support in Biguinibora Through Restoration of Degraded Land	Support to the Development of Community NGOs (ADOC)	This project involves the rehabilitation of grazing land through construction of demi-lunes, with the active participation of local actors through capacity building. Local supervisors for initiatives and plotters will be trained and 15,000 seedlings for various species of herbaceous plants will be planted to rehabilitate degraded land and create more environmental awareness among the local population.

- Outcomes on use and development of biocultural indicators
  - Indicators can be used for more than M&E. They can benefit communication, education, planning, community empowerment, community bonds, etc.
  - Resilience is related to long-term sustainability. An indicators approach can bridge local priorities and valuation by external parties.
  - When identifying indicators, balance is needed between locally-specific and generally-relevant. Indicators themselves should be assessed in adaptive management.