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CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

Resilience toolkit: A tool for communities to measure environmental and social changes in their landscapes

Nadia Bergamini, COMDEKS Global Workshop 23-26 Jan 2017

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Bioversity is a global non-profit organization of the CGIAR Consortium Center that places the use and conservation of agricultural biodiversity in smallholder farming systems at the centre of its work.

The Institute's **mission** is to investigate and promote the use and conservation of agricultural biodiversity in order to achieve better nutrition, improve smallholders' livelihoods and enhance agricultural sustainability

Our Initiatives

Healthy diets from sustainable food systems

Productive and resilient farms, forests and landscapes

Effective genetic resources conservation and use

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Socio-Ecological Production Landscapes and Seascapes (SEPLS)

Dynamic mosaics of habitats and land uses, such as villages, farmlands, grasslands, forests, pastoral lands and coasts that have been formed and maintained through interaction between people and nature in a sustainable manner

T. del Río/Wageningen University

LI-BIRD/S. Subedi

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SEPLS are beneficial

Benefits

- Various goods and services (food, water, energy, livelihoods…)
- Enhance resilience (food and water security / poverty alleviation / disaster)
- Climate change mitigation and adaptation
- Home for various species - biodiversity
- Cradle for culture and tradition

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… but SEPLS are threatened

Threats

- Abandoned (rural depopulation, aging population etc.)
- Degraded (population growth, overexploitation etc.)
- Lost (unplanned urbanisation, industrialisation, natural disasters etc.)

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Resilience in SEPLS

- Absorb shocks and maintain function
- Self-organize, and
- Learn and adapt

The long-term persistence of community-managed landscapes and seascapes that employ appropriate management and use of natural resources and biodiversity defines them as **resilient** systems.

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The 20 indicators of resilience

A. Landscape/seascape diversity and ecosystem protection

1) Landscape/seascape diversity

2) Ecosystem protection

3) Ecological interactions between different components of the landscape/seascape

4) Recovery and regeneration of the landscape/seascape

B. Biodiversity (including agricultural biodiversity)

(5) Diversity of local food system

(6) Maintenance and use of local crop varieties and animal breeds

(7) Sustainable management of common resources

C. Knowledge and innovation

(8) Innovation in agriculture and conservation practices

(9) Traditional knowledge related to biodiversity

(10) Documentation of biodiversity-associated knowledge

(11) Women's knowledge

D. Governance and social equity

(12) Rights in relation to land/water and other natural resource management

(13) community-based landscape/seascape governance

(14) Social capital in the form of cooperation across the landscape/seascape

(15) Social equity (including gender equity)

E. Livelihoods and well-being

(16) Socio-economic infrastructure

(17) Human health and environmental conditions

(18) Income diversity

(19) Biodiversity-based livelihoods

(20) Socio-ecological mobility

System	Country	Site	Coordination
Inland water systems (Lakes, Watersheds, Wetlands)	Kyrgyzstan	Lake Issyk-Kul	COMDEKS Kyrgyzstan
	Malawi	Tukombo-Kande, Lake Malawi	COMDEKS Malawi
	Niger	Tabalak Lake	COMDEKS Niger
	Cambodia	Steung Siem-Reap Watershed	COMDEKS Cambodia
	Ecuador	Alto Napo River Watershed, Amazon	COMDEKS Ecuador
	Costa Rica	Rio Jesus Maria Watershed	COMDEKS Costa Rica
	Slovakia	Vychodoslovenska nizina Lowland	COMDEKS Slovakia
	China	**Qingtian County/ Hani Rice Terraces**	**IGSNNR / Bioversity International**
Coastal seascapes	El Salvador	Jaltepeque-Naja Lempe	COMDEKS El Salvador
	Fiji	Natewa and Tunuloa Peninsula	COMDEKS Fiji
		Bouma National Heritage Site – Taveuni Island	**National Trust of Fiji /Bioversity International**
	Indonesia	Semau Island	COMDEKS Indonesia
	Turkey	Datça-Bozburun Peninsula	COMDEKS Turkey
Mountain ecosystems	Bhutan	Gamri Watershed	COMDEKS Bhutan
	Bolivia	**Candelaria**	**PROINPA** **Bioversity International**
	Ghana	Weto Range	COMDEKS Ghana
	India	Kumaon Region, Uttarakhand	COMDEKS India
	Nepal	Makawanpur	COMDEKS Nepal
		Begnas	**LI-BIRD, / Bioversity International**
Agro-pastoral systems	Brazil	Jequitinhonha Valley	COMDEKS Brazil
	Cameroon	Bogo Region	COMDEKS Cameroon
	Cuba	**Chucillas del Toa MaB Reserve**	**INIFAT / Bioversity International**
	Ethiopia	Gibel Gibe Catchment	COMDEKS Ethiopia
	Kenya	**Kitui**	**Bioversity International**
	Tanzania	**Lushoto (2 communities) (Kwang'wenda in Humid warm zone another from Humid cold zone)**	**Bioversity International**
	Uganda	**Rakai District (Kiwaguzi , Kyaluwakula, Kiganda, Lukyamo, Kigiimbi and Gosoola villages)**	**Bioversity International**
Grasslands	**Mongolia**	Central Selenge Region	COMDEKS Mongolia
		Ulaanbaatar and the Central /Hangai Region	**JASIL / Bioversity International**
	Namibia	Ipumgu-ya-Shilongo Conservancy	COMDEKS Namibia

Purpose of the indicators

1. Measure the impact of agricultural and other land management practices on ecosystem integrity and community wellbeing
2. Measure the benefits (ecosystem services) that wild landscapes and niches provide to livelihoods in managed ecosystems
3. Measure interactions between people and the various components of mosaic landscapes and biodiversity-rich production systems
4. Assess community ability to adapt, innovate and maintain resilience in “Satoyama” landscapes
5. Establish a common understanding between conservation and development agencies and communities to establish an alternative global model for conservation and development

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The Toolkit

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SATOYAMA INITIATIVE

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute for the Advanced Study of Sustainability

UNDP
Empowered lives. Resilient nations.

IGES
Institute for Global Environmental Strategies

The Toolkit: Practical guidance for using the indicators

Stage 1: Preparation

- Preparation of an assessment workshop: clarifying the purpose, area, collecting information, identifying stakeholders, boundary, style of workshops, translation of the indicators

Stage 2: Workshop

- Implementation of an assessment workshop: 1) introduction (participatory mapping, discussion of biodiversity and resilience, explanation of the indicators), 2) scoring (individual and group), and 3) discussion, next steps

Stage 3: Follow-up

- Follow up of the workshop: further analysis, sharing results, developing action plans, repeated assessment for adaptive management

Preparation

Resilience Assessment workshops

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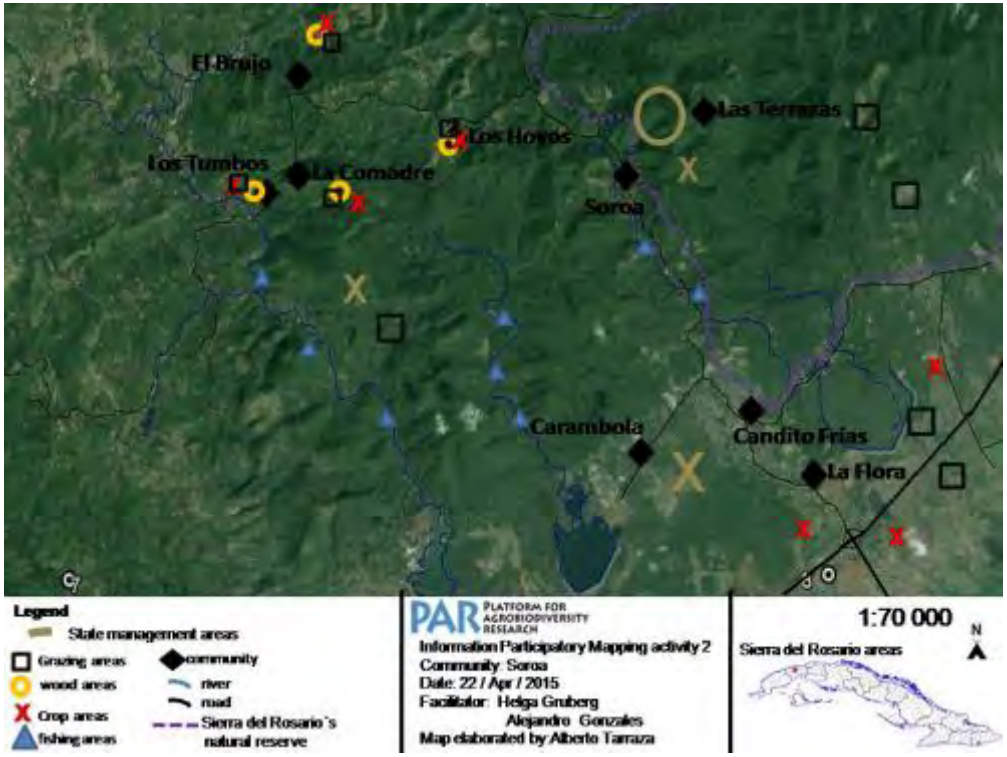
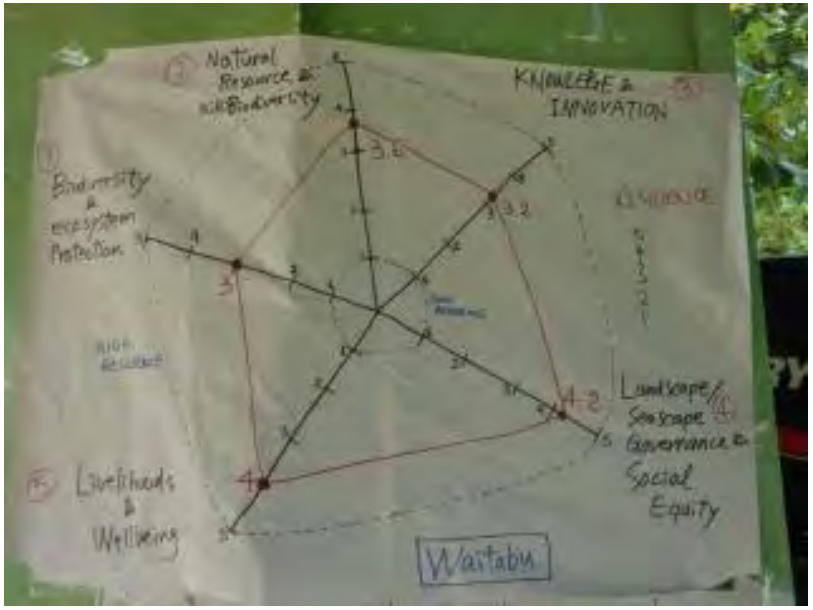
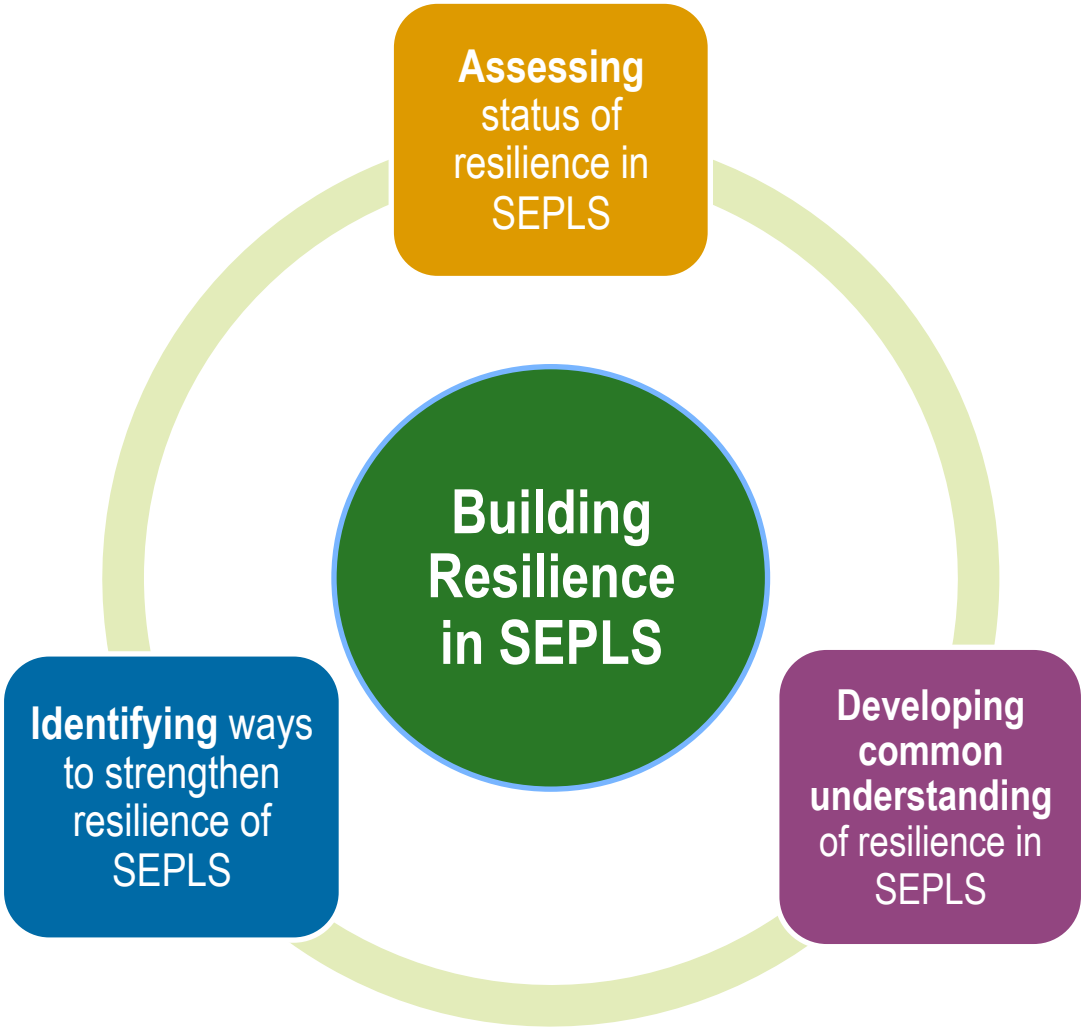
Participatory mapping



Follow-up


Natural Resource & Biodiversity
KNOWLEDGE & INNOVATION
Biodiversity & ecosystem Protection
Landscape/ Seascape Governance & Social Equity
Livelihoods & Wellbeing
Waitabu

The Resilience Indicators Framework



How to use the results

Local communities

Develop **landscape strategies and/or landscape action plans** that are based on local values, worldviews and local knowledge.

Policy makers

Promote ***participatory landscape/seascape management***

Identify intervention priorities and develop strategies at the local and national level that are culturally grounded

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Thank you

Toolkit can be downloaded from:

http://bit.ly/wskSgu

www.bioversityinternational.org

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Science for a food secure future