

Agricultural landscapes and the resilience of social-ecological systems

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Pablo Eyzaguirre, Bioversity International



y Some observations from the Discussion Paper

Role of human agency in shaping landscapes

Biocultural landscapes – where/whether to draw the line?

Locally appropriate policies (p.1), Ecosystem Approach (p.2)

No "regulation of human activities," but strengthening them Ecosystem Approach is not yet a very practical guide to action

Who validates these landscapes, is certification necessary?

"pay due respect to unique histories, cultures"... (p.7) scientifically explaining rationale behind local forms of knowledge and practices (p.7) certification schemes for environmentally-sound agricultural methods (p.8)

The concept and ideal of "harmony", iconic systems

risk of disqualifying itself → harmony rarely exists, and where it does it's under threat.

Instead → identify aspects in human-environment interaction that contribute to landscape resilience, and elements that do not (can be improved).



Viewing the conservation of *Satoyama*-like landscapes through the prism of social-ecological resilience

The resilience of landscapes derives from ecological characteristics (biodiversity, habitat, ecosystem services) and social features (institutions, networks, education), as well as from the link between the natural and anthropogenic components.

'Preservation' approach

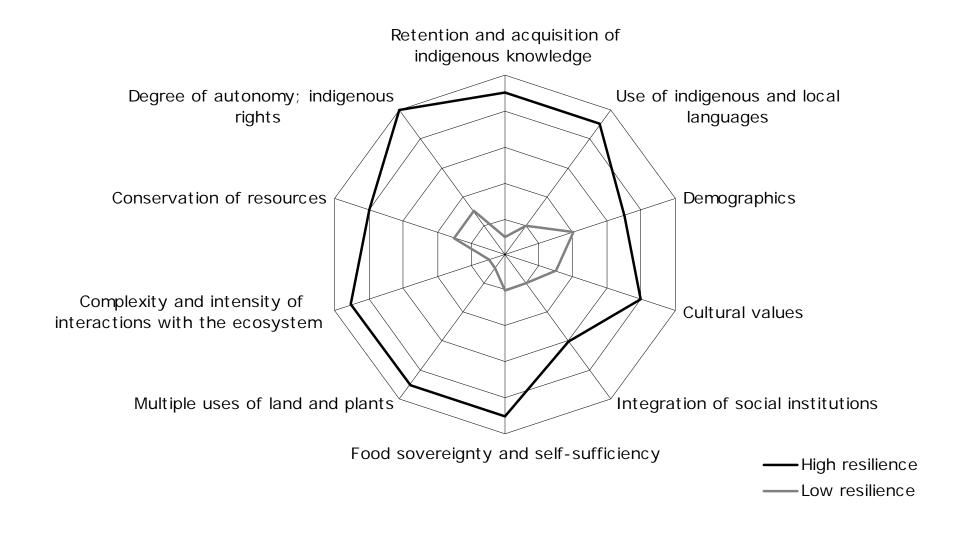
- Conserve iconic landscapes
- Limit human activity (disturbance)
- Human activity must be kept within limits of ecosystem (disconnection)
- External management
- Local participation

'Resilience' approach

- Conserve adaptation processes
- Strengthen beneficial human innovations
- Promote social and ecosystem interdependence
- Endogenous management
- Local autonomy



Using indicators to measure the resilience of social-ecological systems



Afghan Pamirs

Ingenuously irrigated system largely based on the cultivation of mulberry (Morus alba & Morus nigra)



Photograph: F. van Oudenhoven



Using indicators to measure the resilience of social-ecological systems

Retention and acquisition of indigenous knowledge

Degree of autonomy; indigenous rights

Conservation of resources

Complexity and intensity of interactions with the ecosystem

Multiple uses of land and plants

Use of indigenous and local

- Diversity of cultivated crops and varieties: grains, fruits, legumes, vegetables, tubers.
- Diversity of food sources gathered from the wild: roots, berries, mushrooms, fish, meat.
 - Number of traditional cultivars or species preferred for distinct uses
- Multiple uses of a species (food, material, soil nutrient enrichment, shade, etc.)
- The use of traditional medicine.
- Diverse agricultural systems: intercropping, agroforestry, silvo-pastoral integrated farming and cultivation systems.

Food sovereignty and self-sufficiency

----High resilience



A village in the walnut-fruit forests of Kyrgyzstan

Wild apple (Malus sieversii)



Wild cherry plum (Prunus cerasifera)



Photographs: F. van Oudenhoven



Using indicators to measure the resilience of social-ecological systems

Retention and acquisition of indigenous knowledge

Degree of autonomy; indigenous

- Availability of safe, nutritious and culturally appropriate food in sufficient quantity and quality.
- The abundance and use of traditional foods, seeds and medicines in the local production system.
- Intensity of fertilizer, insecticide and/or Comp herbicide use on agricultural land interactions with the ecosystem
 Contribution of traditional subsistence activities
 - Contribution of traditional subsistence activities to indigenous communities' economy (as opposed to out-migration for labor).
 Multiple uses of land and plants

Use of indigenous and local



Integration of social institutions

Food sovereignty and self-sufficiency

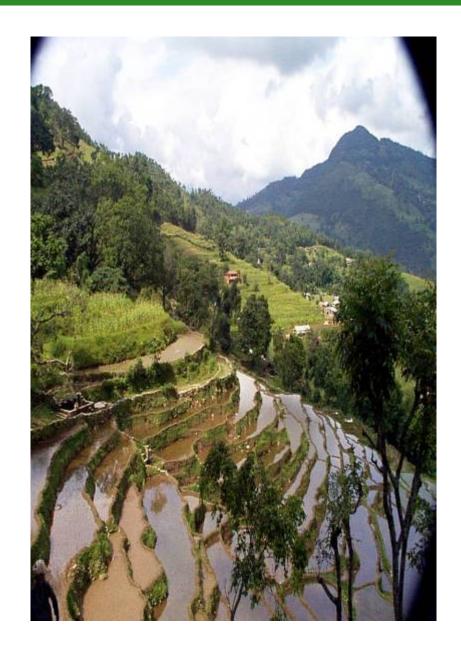
— High resilience

Low resilience



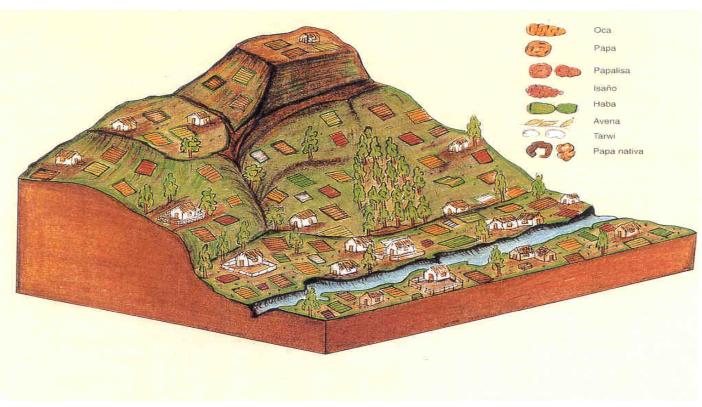
Nepali agrarian landscapes create and Bioversity intensify niches to maximize use of biodiversity and maintain the resilience of mountain ecosystems







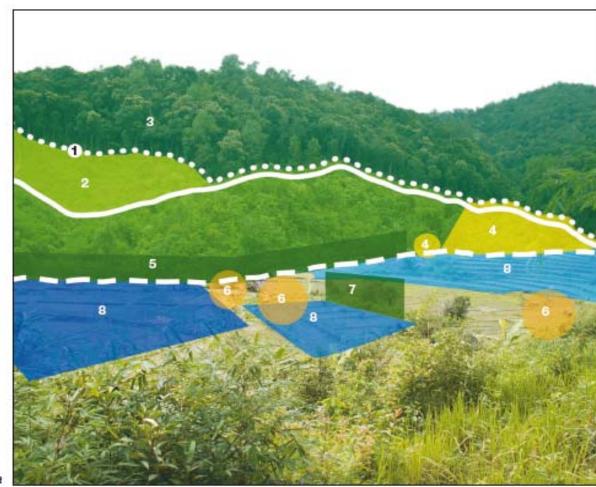
Bio-intensive Technology for Mosaic Landscapes



The deployment of agricultural biodiversity in culturally maintained landscapes. Andean landscape mosaics (Terrazas and Valdivia 1998)



Karen rotational farming system (northern Thailand)





Fotograph: P. Bordoni Graphics: P. Tazza



Homegardens in Landscape of Kadugannawa Area of Kandy District, Sri Lanka

