Conserving Biodiversity in Agrarian and Natural Landscapes:

Developing and applying lobal indicators of social and ecological integrity and well-being of mosaic landscapes rich in biodiversity.

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Yamanashi Institute of Environmental Science, Fujiyoshida Japan.
MOEJ, UNU-IAS

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Overview

- Brief introduction/revision of analytical framework
- Proposed organization. Platform of research on topic
- Possible sites: Cuba, Tajik Pamirs, Sri Lanka, Eastern Kenya, Sahelian and possibly coastal zones in the Upper Guinea Coast, Potato Park-Peru.

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 ones (institutions, networks, education), ***as well as from the link between these natural and human components***

'Preservation' approach

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

'Resilience' approach

- Conserve process of creation
- Strengthen beneficial human activity
- Human activity is determined by ecosystem (interdependence)
- Endogenous management
- Local autonomy

Purpose of indicators

1. Measure the impact of agricultural and other land management practices on ecosystem integrity and community wellbeing
2. Measure the benefits 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 paradigm for conservation and development

Why develop indicators?

Indicators establish a set of agreed points in a process:

- Indicators of ecological processes that are being maintained or changing.
  - Ecosystem integrity, richness, distribution of biodiversity and bio-resources
  - Flows across components of a landscape and across ecosystems, and their impacts
- Indicators of progress towards common goals MDGs, conservation targets, community cohesion and reduced marginalisation.
- Indicators can be applied to several concomitant processes
  - to manage tradeoffs or prioritise actions in the case of conservation and community development
  - To manage different land use practices in mosaic landscapes for ecosystem integrity, long term productivity. E.g interface between cultivated and wild landscapes, or pastoralism, forests uses, farming and conservation rules.

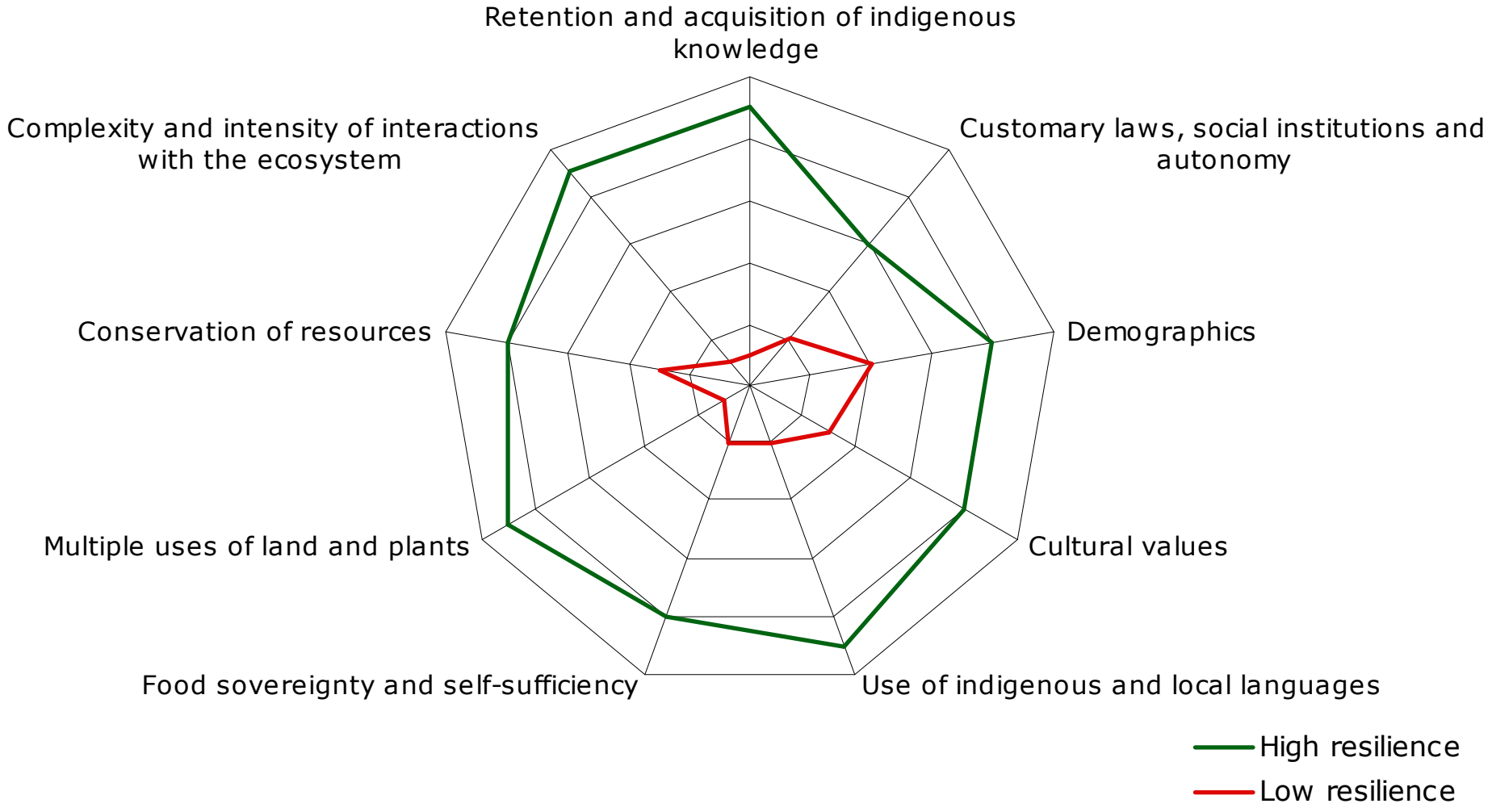
Why measure and who decides what units to use

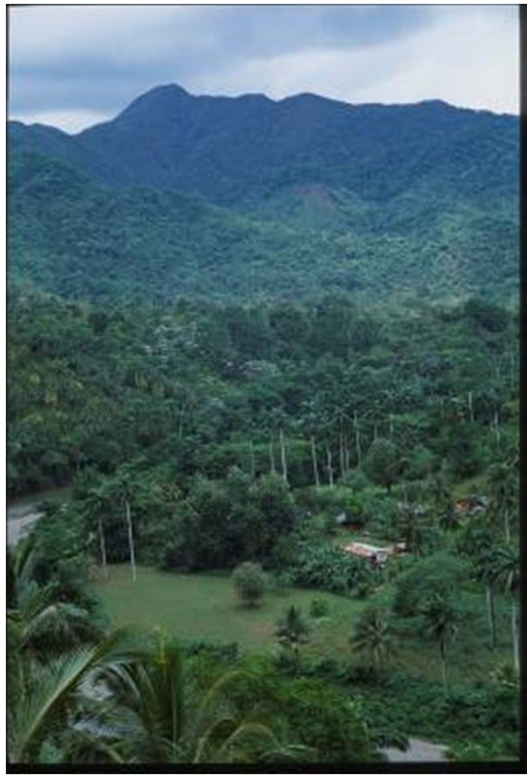
Measurement includes the different perspectives as seen by those living on the landscape and the perspectives of outsiders.

What to measure and the units of measurement depends on what one is able to perceive, how biodiversity is being used, and the quality of life that communities define as key to well being.

- Measurement can change perceptions and processes for the better or undermine traditional measures that emphasised relationships and interactions, between wild and cultivated, or spiritual and socio-economic.
- Outsiders (scientists) can apply units of measurement that smaller and more precise, and generic than what communities may perceive
- Communities perceive relationships among components of landscapes and ecosystems and long term cycles that are impercetible to or ignored by outsiders

Indicators to measure the resilience of social-ecological systems





Agricultural Biodiversity Conservation and Cuban Man and Biosphere Reserves: **Bridging managed and natural landscapes**

•Restoring diversity and health to Cuban agrarian landscapes and food systems.

•Supporting protected area management and conservation of agricultural biodiversity


ISIDRO PILOTO

Tajik Pamirs – reviving cultural knowledge and wild and cultivated landscape management


Photograph: F. van Oudenhoven

mulberries

Landrace	Meaning of local name	Products made (e.g. jam, compote, juice)	Medicinal qualities
Asli	local	coarse pikht, jam, special juice (called bekmez)	kidney diseases, anemia, vit. A deficiency, low blood pressure
Bedona	without seeds	**better pikht** (dried mulberry flour), jam, special juice (called bekmez)	
Chavtut	multi-coloured	pikth, jam, special juice (called bekmez)	kidney diseases, anemia, vit. A deficiency, low blood pressure
Khasak	**not useful**	used only for rootstock	kidney diseases, anemia, vit. A deficiency, low blood pressure
Khirdkhog tut	like walnut (big fruits)	pikht, jam, special juice (called bekmez)	kidney diseases, anemia, vit. A deficiency, low blood pressure
Malbeb	small sort	pikht	kidney diseases, anemia, vit. A deficiency, low blood pressure
Muzafari	name of the person who brought it here from Afghanistan	pikht (but difficult to make, because sticky), jam, special juice (called bekmez)	especially good for kidney stones, anemia and low blood pressure
Revichtut	Многоплодная	pikht, jam, special juice (called bekmez)	**tonsilitis, high blood pressure**
Shafin	slimy		kidney stones
Shaikhi	brought from place Shaikh	pikht, jam, special juice (called bekmez)	especially good for anemia and low blood pressure
Shatut	**for kings**	jam, compote	tonsilitis, high blood pressure, **eaten with chop sticks**

Indicators to measure the resilience of social-ecological systems

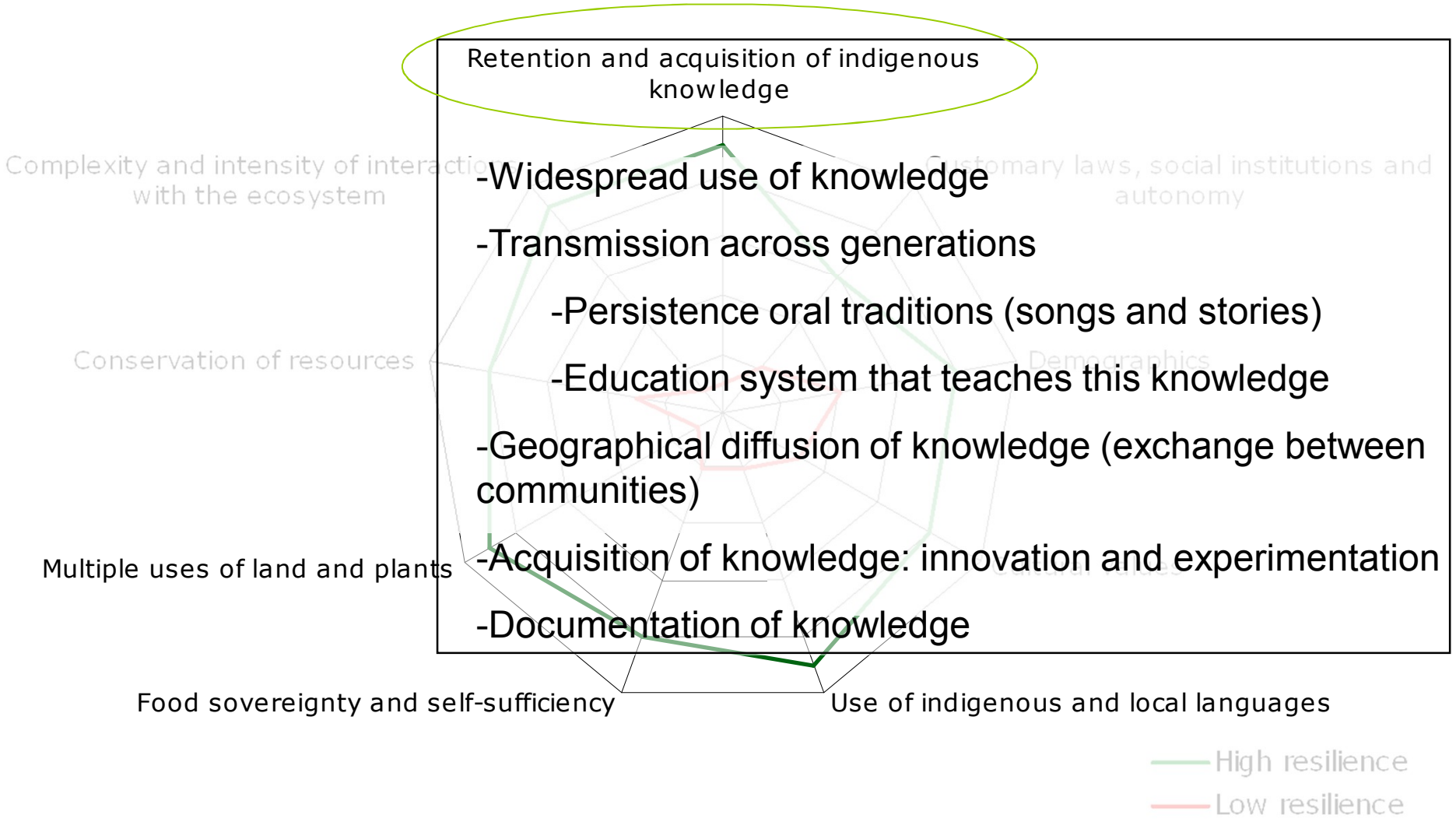


Figure 2. Structure and composition of a typical Kandyan homegarden in Sri Lanka

Figure 3. Agroforestry raises tree cover to 50 per cent in this landscape where natural forest cover is less than 10 per cent

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Basawakkulama wewa (Abaya Wewa Ancient Reservoir)

Ancient village tank in intermediate zone

In Inyuu village, fruits of berchemia come into season in the months of February and March when the mango season is already over. Berchemia grows naturally but is managed both in cropland and in the wild.

- A child eating tamarind fruits at Inyuu village, Chuluni District

A girl drawing water from a well made by scooping out sand from a dry stream bed, Tiva village, Kitui District

A woman selling edible gourds and cowpea leaves in Kalundu market, Kitui town

A member of Kyanika Adult Women's group working in a group farm. The crop is an early maturing pigeon pea.

Potato Park and Ruta Condor

reviving the customs, rules and cultural cosmologies that promote the maintenance and exchange of biodiversity that supports Kechwa &Aymara communities in the Andes

On an old Inca ruin an hour or so outside of Cusco. A woman is picking up potatoes that have been left in the frost overnight.
This is done only with some special potato varieties and gives them a very peculiar flavour.