ISAP 2016 Parallel Session
Integrated landscape management: Effective approaches
for translating knowledge into transformative action
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Integrated landscape management through reevaluation of traditional and local knowledge

Prof. Kazuhiko Takeuchi
(United Nations University / The University of Tokyo)

UNITED NATIONS
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IR3S
Integrated Research System for Sustainability Science

Realizing Society in Harmony with Nature through the Satoyama Initiative

- CBD COP 10 adopted the Aichi Biodiversity Targets with the vision of "**Life in harmony with nature**".
- The Satoyama Initiative embodies the second objective of the CBD, "**Sustainable use of biodiversity**"
- The International Partnership for the Satoyama Initiative (IPSI) was launched during CBD COP 10.
- To meet contemporary needs, it aims to conserve and restore **socio-ecological production landscapes and seascapes (SEPLS):**
  - Dynamic mosaics of habitats and land-uses shaped through harmonious interactions between humans and nature.
  - Provide goods and services that contribute to human well-being while maintaining biodiversity.
  - Faced with decrease and degradation due to various reasons in many regions.


The 6th Global Conference of IPSI (IPSI-6)
Jan 2016 in Siem Reap, Cambodia


Agroforestry
(Brazil nut and cacao forest)


Paddy dominated landscape in Bali


Abandoned paddy fields in Japanese *satoyama* (© S. Okubo)


Homegarden in Kerala (© BM Kumar)

Traditional Landscape in Andean Region in Peru (Potato Park)

Landscape approach

- Integrated landscape management of mosaic of different land uses
- Different land uses with elevation change (Maize → Barley→ Potato → Grassland)

Agricultural biodiversity conservation (potato, corn, etc.)

- Different uses depending on variety
- *In situ* conservation

Use of modern technology

- Production of disease-free seed potatoes through modern technology
- Collaboration with International Potato Center (CIP)

Boosting livelihood by promoting tourism

Resilience of Traditional System in Rural Areas in Asia

CECAR
Climate and Ecosystems Change Adaptation and Resilience Research

Survey location	Climate-ecosystem/socio-economic change	Systems	Shock-resistance	Resilience rating (current)	Intervention options	Resilience rating (after intervention)
Home gardens Vietnam Indonesia Sri Lanka	▫ Flooding/long dry season /rainfall pattern change/pest damage/saltwater infiltration ▫ Market adaptation/market economy penetration	VAC/ Pekarangan/ Kandyan home garden	▫ Cash crops, commercial livestock production, food self-sufficiency	Ecological: High ↘ Socio-econom: Low ↗	▫ Use certification system ▫ Form communities ▫ Enhance material cycling by mixed production ▫ Strengthen safety net	Ecological: High Socio-econom: Med.
Vietnam Xuan Thuy	▫ Rainstorm/flooding ▫ Disease-pest damage ▫ Saltwater infiltration ▫ International market adaptation ▫ Market economy penetration	VAC	▫ Commercial livestock production	Ecological: Med. ↘ Socio-econom: Med. ↗	▫ Use certification system ▫ More stable operation by combining VAC and rice farming ▫ Combine traditional and modern varieties ▫ Improve quality	Ecological: Med. Socio-econom: High
		Rice cultivation	▫ Moving irrigation water source upstream ▫ Selection of varieties	Ecological: Low ↘ Socio-econom: Med. ↘		Climate-eco: Med. Socio-econom: Med.
Indonesia Gunung Kidul	▫ Long dry season ▫ Lack of rain/change in rainfall pattern ▫ Flooding ▫ International market adaptation ▫ Market economy penetration	Social forestry/ Pekarangan	▫ Diversify livelihood ▫ Biodiversity	Ecological: High → Socio-econom: Low →	▫ Use forest certification system ▫ Create resource management system ▫ Move to agroforestry by commercial reforestation	Ecological: Med. Socio-econom: Med.
		Commercial reforestation	▫ Sale of high value-added wood products	Ecological: Low → Socio-econom: High →		Ecological: Med. Socio-econom: High
Sri Lanka Kilinochchi Deduru Oya Mahaweli H	▫ Dryness/declining rainfall ▫ Damage to irrigation infrastructure due to civil war ▫ International market adaptation ▫ Market economy penetration	Traditional storage water tanks	▫ Restore/use traditional irrigation systems ▫ Multi-functionality	Ecological: Med. → Socio-econom: Low ↘	▫ Integrate new and old irrigation systems ▫ Create communities ▫ Appropriate resource management system to avoid drought	Ecological: High Socio-econom: High
		New irrigation system	▫ Efficient use ▫ Collaborative management	Ecological: Low → Socio-econom: Low →		Climate-eco: High Socio-econom: High

Contribution to Sustainable Development Goals (SDGs)

- Global goals for achieving sustainable development with balance among economy, society and environment, aiming for resilient, inclusive and sustainable “high-quality growth”. (Target year: 2030)
- Universal goals and targets that involve the entire world. Unanimously adopted by UN General Assembly in September 2015
- Promoting the Satoyama Initiative will contribute to many of the goals and targets

Resilience in the SDGs

Goal1 End poverty in all its forms everywhere

target 1.5 by 2030 build the **resilience** of the poor and those in vulnerable situations, and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

Goal2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture

2.4 by 2030 ensure sustainable food production systems and implement **resilient** agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality

Goal9 Build **resilient** infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.1 develop quality, reliable, sustainable and **resilient** infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.a facilitate sustainable and **resilient** infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, LDCs, LLDCs and SIDS

Goal11 Make cities and human settlements inclusive, safe, **resilient** and sustainable

11.b by 2020, increase by x% the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, **resilience** to disasters, develop and implement in line with the forthcoming Hyogo Framework holistic disaster risk management at all levels

11.c support least developed countries, including through financial and technical assistance, for sustainable and **resilient** buildings utilizing local materials

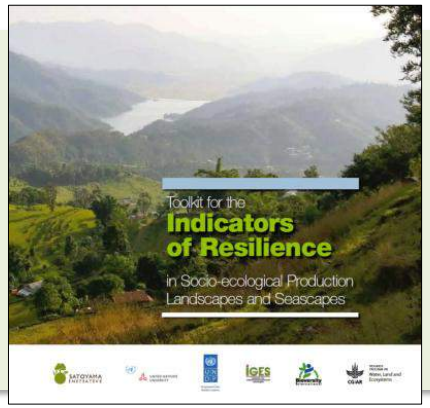
Goal13 Take urgent action to combat climate change and its impacts

13.1 strengthen **resilience** and adaptive capacity to climate related hazards and natural disasters in all countries

Goal14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development

14.2 by 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their **resilience**, and take action for their restoration, to achieve healthy and productive oceans

Resilience Assessment by Local Communities



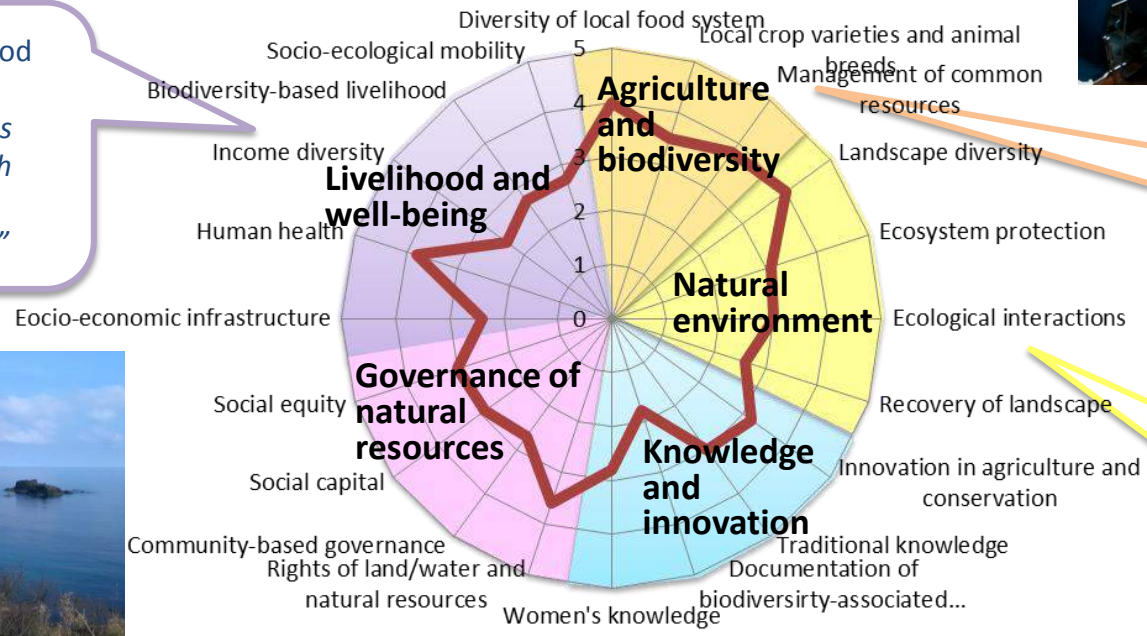
Indicators of resilience in SEPLS

- **IPSI Collaborative Activity (developed by UNU, IGES, Bioversity International, UNDP)**
- Assessing multiple aspects of SEPLS using **20 indicators** in five categories
- **Promote local communities to consider and act toward strengthening resilience through participating in assessments**

Workshop in Suzu City, Ishikawa Pref. (Feb 2016)

15 residents of different ages and background in Hiki area exchanged reasons for the assessment results and thoughts on issues facing the area.

Lower scores for livelihood indicators:
"There are not many jobs here that provide enough income, so need to have multiple income sources"



Very high scores:
"We try to consume food produced here as much as possible"

"The landscape is diverse but more land is becoming abandoned"

Blessings and Threats of Nature in Japan

Scenic beauty
(Ex. caldera)

Aso Caldera

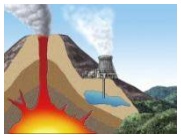
Nutrient-rich
Volcanic Sediments

Blessings of Nature

Vegetation-covered landscape

Grazing in Aso Grassland

Water



Geothermal

Hot springs

Biodiversity

Four seasons

Geophysical Events

Meteorological Events

Kumamoto Earthquake April 2016

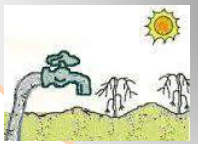
Landslides

Storms

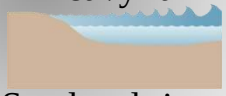
Heavy rain

Kumamoto Regional Flooding July 2012

(Source: MLIT HP)



Droughts



Sea-level rise

Tsunami

Hazardous volcanic events

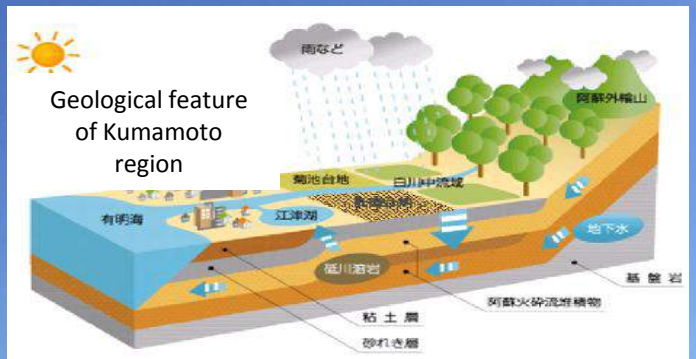
Disasters

Climate Change

Linkage between Forest, Countryside, River and Sea in a GIAHS site
“Managing Aso Grasslands for Sustainable Agriculture “

Source：阿蘇草原再生協議会

Grassland of Aso is in the headwater area of 6 class A rivers. It serves as a “water jar” for northern Kyushu providing drinking water for 2.3 million people.



Linkage between grassland, forest, countryside, river and sea


Source: 熊本市上下水道局

Aso provides 1 million people with tap water in Kumamoto and neighboring municipalities.

Open burning

Grassland

Grassland species (*Polemonium kiushianum*)

Grassland compost

Mowing

Forest

Farmland

Products (Tomato)

Managing grassland

Forage

Biodiversity conservation

Branding agricultural products

Japanese Brown Cattle

Tourism promotion

Paddy field

Sign “grassland restoration”

Meat products

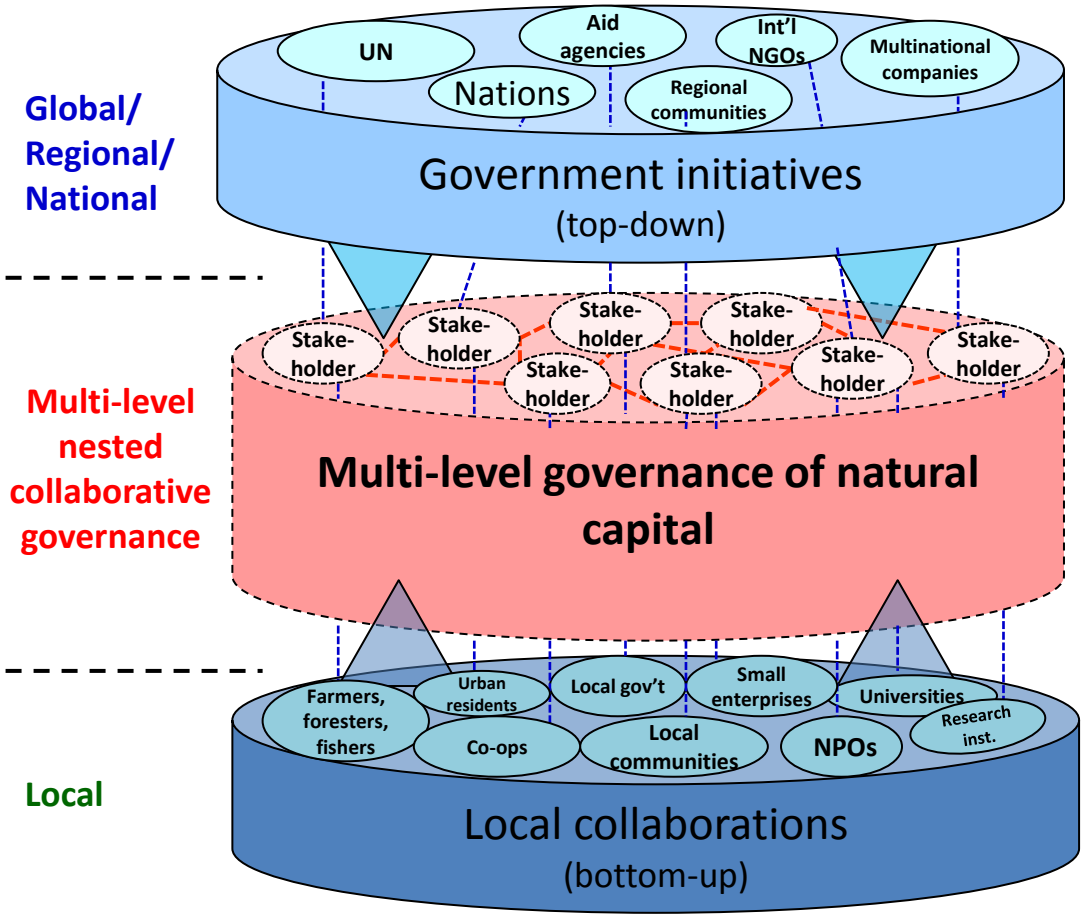
Cow manure

Rice

Revitalization of grassland environment

Multi-level Nested Governance of Natural Capital

- It is necessary to create mechanisms for collaborative management in order to avoid degradation of natural capital as stock, and to promote sustainable provision of ecosystem services.
- It is necessary to explore new governance structures, or "new commons" whereby various stakeholders engage in horizontal cooperation.
- It would be effective to build multi-level and nested governance structures that value bottom-up activities at the local level while connecting with global networks.



Mechanism for cooperative management of natural capital based on nested collaboration between different stakeholders

Thank you for your attention