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Experiences and Lessons from the Japan *Satoyama Satoumi* Assessment (JSSA)

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What are *satoyama* and *satoumi*?

JSSA defines *satoyama* and *satoumi* landscapes as **dynamic mosaics of managed socio-ecological systems producing a bundle of ecosystem services for human well-being.**



Satoyama



Satoumi

(JSSA, 2010)

Socio-Ecological Production Landscapes = SEPLs



越冬のため飛来したハクチョウ



ボラ持ちやぐら



能登上布



里山景観

日本海に突き出た能登半島

自然と調和した農林水産業と人の営みが育む「能登の里山里海」
未来へ引き継ぐ、世界に認められた大切な宝物です。

伝統的な農林漁法と土地利用

稲のはぎ干し(天日干し)や海女漁などの伝統的な農林漁法が今も継承されています。農業用の水源として2千を超える「ため池」が点在し、傾斜地には棚田が多く見られます。

多様な生物資源

能登各地の里山里海には希少種を含むたくさんの生きものが生息・生育し、渡り鳥も多く見られます。また、「能登野菜」などの在来品種の栽培の振興も積極的にはかれています。

優れた里山景観

日本海に面した急傾斜地に広がる「白米の千枚田」をはじめとした棚田や谷地田、茅葺きや黒瓦・白壁の家並みなどは、日本の農山漁村の原風景とも表現される景観です。



キリコ祭り

伝えたい伝統的な技術

唯一能登にだけ残る「揚げ浜式」と呼ばれる製塩法や、日本を代表する伝統工芸「輪島塗」、里山の管理・保全と密接に結び付いた「炭焼き」などの伝統的な技術が継承されています。

文化・祭礼

夏から秋にかけて登漁や豊作を祈願して行われる「キリコ祭り」をはじめ、ユネスコの無形文化遺産にも登録された農耕儀礼「あえのこと」など、農林水産業と密接に結び付いた文化・祭礼が能登各地に継承されています。

里山里海の利用保全活動

「能登の里山里海」を未来へ引き継ぐため、棚田のオーナー制度やキリコの担ぎ手ボランティア、ピオトープの造成などの活動が多様な主体の参画により進められています。



揚げ浜式製塩法



はぎ干し



能登野菜



輪島塗



こし梅(干し梅)



Noto' Satoyama Satoumi was designated as GIAHS (UNU-FAO) in June, 2011

Rationale for SGA in Japan

■ Crises of *Satoyama* and *Satoumi*

• **Declining and disappearing** ← *multiple causes*

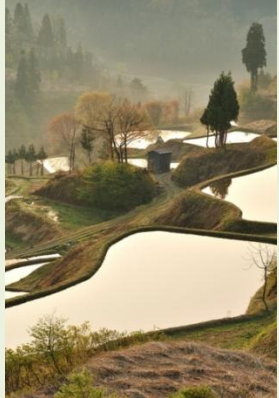
- Abandonment, Ageing, out-migration of younger workforce, Global trade, Shifting trends in energy consumption (since energy revolution of 1950s), Urbanization, Invasive Alien Species, Unclear property rights, etc.

• **Consequences of changes**

- Impact on local economy, Loss of biodiversity, Erosion of cultural heritage, Disasters (attacks by bears, destruction to food crops by monkeys), Increasing the gap between rural and urban areas.

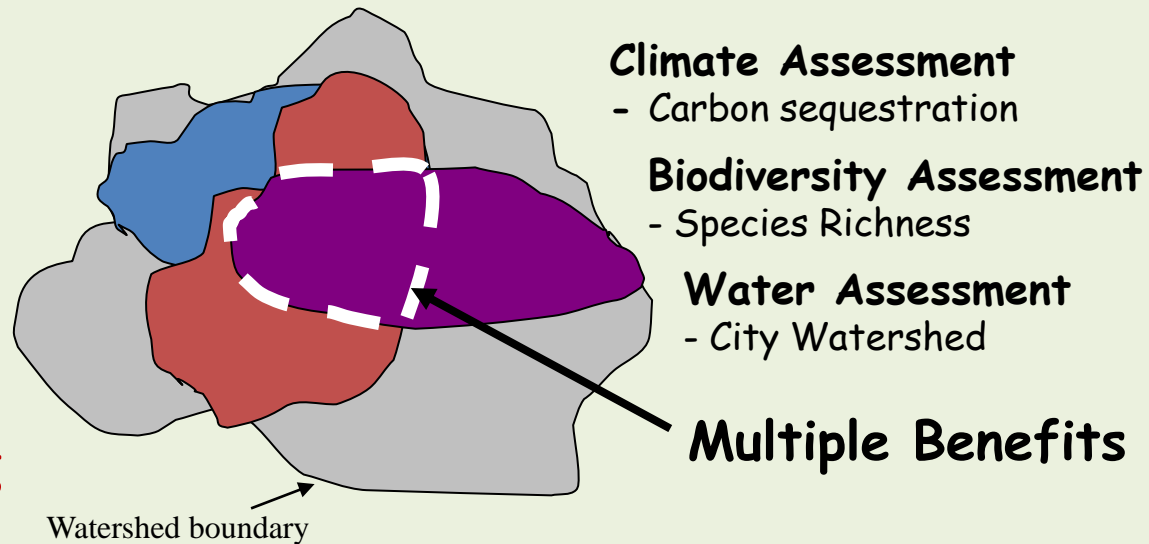
■ Initiatives exist for conservation and restoration of *satoyama* and *satoumi*

- **National & local governments** : pilot projects by the Ministry, Ordinances by local governments
- **Local groups and networks**: Over 1,000 groups formed in Japan to work on the issues
- **Research and academic institutions and scholars**: Research on various aspects of the issues, *Satoyama* nature schools
- **Business and Industries**: CSR activities (Toyota Motor Corporation, Sekisui House, Aeon, etc.), Eco-tourism, etc..



MA's Relevance to *satoyama* & *satoumi*

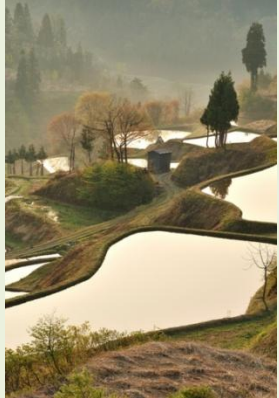
- Need for **building synergies and streamlining existing initiatives** and **adding value to the information** for various users.
- This is where **an assessment** will play a crucial role. (**addressing the existing gaps, but building on existing initiatives**)
- UNU has put in place a process to conduct an assessment.



For example, separate assessments of climate, biodiversity or water might yield different priorities for conservation areas. **An integrated assessment allows the trade-offs among these goals to be examined.**

Key Features of JSSA

- **Assessment of current state of knowledge** – a critical evaluation of information on the interaction between humans and ***satoyama and satoumi landscapes*** in Japan using the **MA** framework of **ecosystem services**
- **Launched in 2007, contribution by 200 plus** authors, stakeholders, and reviewers from Japan and abroad; **peer reviewed**
- Governed by **multi-stakeholder** board and governmental advisory committee (national and local governments, academia, NGOs, etc.) and review process overseen by **independent review board**



Goal and Key Questions of JSSA

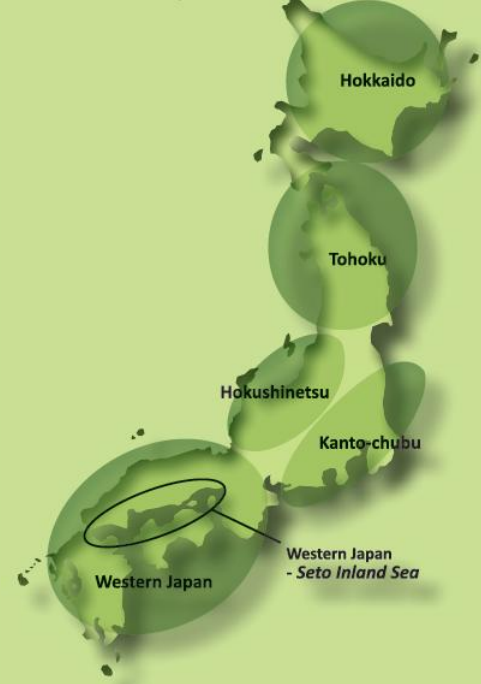
□ GOAL

- Provide **scientifically credible and policy-relevant information** on the significance of **ecosystem services** provided by *satoyama* and *satoumi* landscapes, and their **contributions to economic and human development** for the use of policymakers.

□ KEY QUESTIONS

- **What** are *satoyama* and *satoumi*, and **how** have they changed in the last 50 years?
- **How** have biodiversity and ecosystem services changed in *satoyama* and *satoumi* landscapes, and **what** are the main causes?
- **Why** are changes in *satoyama* and *satoumi* a concern?
- **What** has been done to encourage *satoyama* and *satoumi* systems?
- **What** is the future for *satoyama* and *satoumi* landscapes under plausible scenarios?

Scope of JSSA

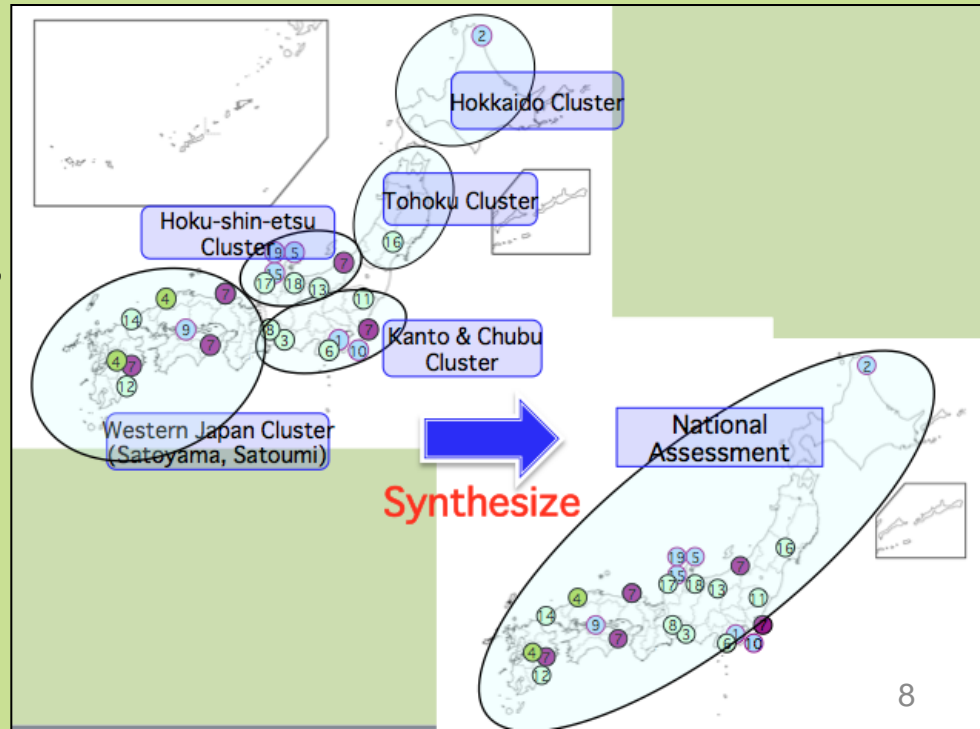


□ TIME FRAME

- Drastic changes have occurred in *satoyama* and *satoumi* in **the past 50 years** since the end of World War II:
 - **Destruction in the urban peripheries**
 - **Abandonment in the rural areas**

□ GEGRAPHIC SCOP






- Include **5 major clusters** throughout Japan to encompass **different geographical, climate, ecological, social, economic, and political characteristics.**



Bottom-up Approach

Changes in ecosystem services, direct drivers and human well-being (JSSA, 2012)

Ecosystem Services			Human Use	Enhanced or degraded	Direct Drivers						Human well-being		
					Changes in land use		Under use	Overexploitation	Global/regional warming	Exotic species		Pollution	
					Urbanization	Loss of mosaic							
Provisioning	Food	Rice	↘	↗	✓		✓		✓			+/-	
		Livestock	↗	↗									+
		Matsutake mushrooms	↘	↘			✓						+/-
		Marine fishery	↗	↘	✓		✓	✓	✓		✓		+/-
		Mari culture	↗	NA	✓						✓		+
	Fabric	Material	↗	↗	✓		✓			✓			+/-
		Firewood and charcoal	↘	↘	✓		✓						+/-
Sericulture		↗	↘			✓						+/-	
Regulating	Air quality regulation		↗	+/-	✓		✓				✓	+/-	
	Local climate regulation		↗	+/-	✓		✓		✓			+/-	
	Water regulation	Flood control	↗	↘	✓	✓	✓					+/-	
	Water purification		↗	+/-	✓	✓	✓				✓	+	
	Soil erosion regulation	Farmlands and forests	↗	↘	✓	✓	✓			✓			+
		Coastal area	↗	↘	✓		✓						-
Pest control and pollination		↘	↘	✓	✓	✓						-	
Cultural	Spiritual	Religion	↘	↘	✓								-
		Festivals	↘	↘	✓								-
	Aesthetic	Scenery	↘	↘	✓								-
		Recreation	Education	↗	↗	✓							
	Game-hunting/		↘	↘	✓								-
	Mountain climbing, sightseeing and green-tourism		↗	↘	✓								+
	Art	Traditional craft	↘	NA	✓								-
		Contemporary art	NA	NA									NA

 Backed by Data
 Without Supporting Data
 A monotone increase (for human use column) or enhanced (for enhanced or degraded column) for the last 50 decades
 A monotone decrease (for human use column) or degraded (for enhanced or degraded column) for the last 50 decades
 No change (for human use column and enhanced or degraded column) for the last 50 decades

 + Enhanced in recent years
 - Decreased in recent years
 +/- Mixed (trend increases and decreases) over past 50 years or some components/regions increase while others decrease
 NA Not assessed
 ✓ The direct drivers that have influenced ecosystem services

Responses that are relatively effective in *satoyama* and *satoumi*

1. Sato (agricultural communities and lifestyles /agricultural land and rivers)	2. Mountains	3. Oceans
<ul style="list-style-type: none"> ● Land use plans ● Biomass utilization ● System of direct payment to hilly and mountainous areas ● Action plan for improvement of farmland, water, and environmental preservation 	<ul style="list-style-type: none"> ● Ordinance for <i>satoyama</i> conservation ● Forest environmental taxes ● Forest certification systems 	<ul style="list-style-type: none"> ● Act on Special Measures concerning Conservation of the Environment of the Seto Inland Sea ● Ordinance for <i>satoumi</i> conservation ● Ocean pollution prevention ● Water quality regulations
4. Biodiversity	5. All areas	
<ul style="list-style-type: none"> ● National Biodiversity Strategy ● Local Biodiversity Strategy 	<ul style="list-style-type: none"> ● Environmental Impact Assessment Law ● The NPO Law ● Nature restoration projects ● Scientific research by local University and government ● <i>Satoyama</i> Initiative ● Re-building of regional cooperative bodies (New Commons) 	

Types of Responses

- Legal
- Economic
- Social & behavioral
- Technological
- Cognitive

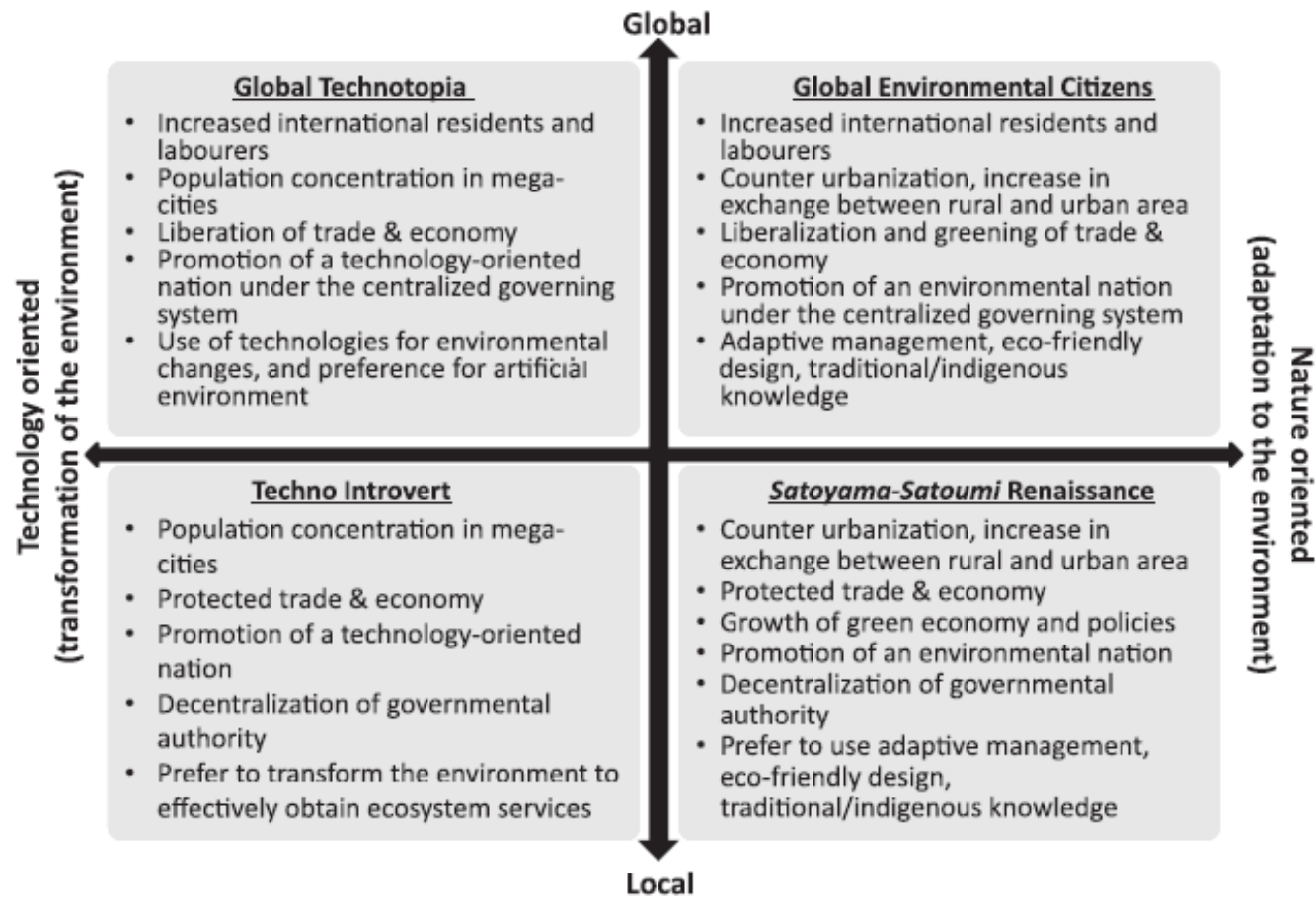
What is the future for *satoyama* and *satoumi* landscapes under plausible scenarios?

❑ **4 scenarios** describing the plausible future **in 2050**.

❑ **Qualitative approach**

❑ **Two axes to identify future developments**

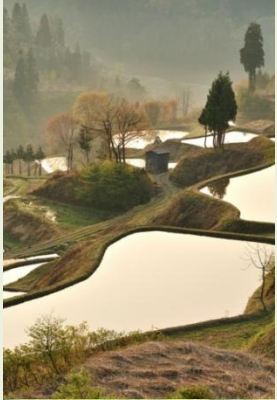
- Governance and economic development: **Global vs. Local**
- Ecosystem service management: **Technology oriented vs. Nature oriented**



(JSSA, 2012)

Key Findings and recommendations from JSSA

- In Japan, *satoyama* and *satoumi*, defined as **socio-ecological production landscapes (SEPLs)**, are **mosaics of different ecosystem types** that are managed by humans to produce **a bundle of ecosystem services** for human well-being
- Continued loss of *satoyama* and *satoumi* landscapes over the last 50 years has **potentially negative consequences for human well-being and biodiversity**, resulting in **a drop of the resiliency** of the coupled socio-ecological production systems
- **Integrated approaches** including **citizen participation** have been used increasingly over the past 10 years
- Critical to a more integrated approach to ecosystem management is creation of a **new “commons”**, which needs to be governed by new institutions designed **under the lens of landscape governance**, allowing **decentralized decision-making** on the land and water use and also ensuring **the equitable access and use** of the ecosystem services.
- **A 10-year research program** be established to gain better understanding of the dynamics of *satoyama* and *satoumi*
- **Comprehensive, integrated assessment** of *satoyama* and *satoumi* at local and national levels in developing and developed countries are needed



Products

- Provided **a valuable scientific data base**
- Provided **a valuable epistemic community of scholars and practitioners**

*Policy Brief, 2010
(English)*



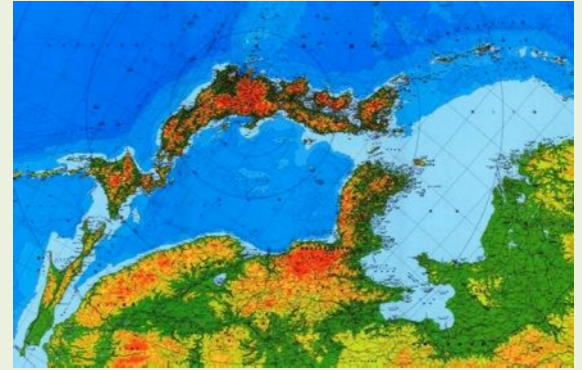
*Cluster Reports
- 6 Regions, 2010
(Japanese)*



*Summary for Decision
Makers, 2010 (English
& Japanese)*



*Technical Reports- Books, 2012
English – UNU Press
Japanese – Asakura Publishing*



Conservation of biodiversity for revitalization of rural communities

- Overcome depopulation and aging of communities
- Harmony with nature and sustainable resource use



Thanks