

POLICY BRIEF

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Local Governance of Production Landscapes: Learning from Japan's Noto Peninsula

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Highlights

Forms of coexistence between nature and people have been receiving increased global attention. The sustainable use of ecosystem services in production landscapes — characterized by ecosystems that maintain biodiversity and produce bundles of ecosystem services — is threatened, however, by abandonment of farmland due to population ageing and decline in many countries. Building futures for these societies requires improving local governance to link multiple stakeholders and knowledge systems.

This policy brief recommends:

- mapping ecosystem services to enable stakeholders to better understand the spatial distribution of these services and improve analysis of current situations
- exploring ecosystem services that have largely been unquantified, to generate new value and enhance community resilience and quality of life
- developing incentives for engaging in nature, to ensure a harmonic relationship between people and nature in production landscapes

Introduction

Since the publication of the Millennium Ecosystem Assessment (MA 2005), the concept of ecosystem services has drawn attention due to its linkages to human well-being. A quantitative understanding of ecosystem services is critical to a wide range of decisions, and interest in assessing ecosystem services has grown exponentially among environmental scientists and policymakers.

Satoyama and satoumi are Japanese terms for socio-ecological production landscapes and seascapes (SEPLS) characterized by a dynamic mosaic of different types of ecosystems that maintain biodiversity and produce bundles of ecosystem services. This form of coexistence between nature and people has been receiving increased attention internationally, building on the launch of the Satoyama Initiative in 2010 at the Tenth Conference of the Parties to the Convention on Biological Diversity. This global initiative was created with the purpose of realizing societies in harmony with nature through the conservation and advancement of SEPLS around the world. The sustainable use of ecosystem services in many SEPLS, however, is at risk due to increasing farmland abandonment as a result of population ageing and decline.

This policy brief presents approaches for improving local governance to advance the sustainable use of ecosystem services in SEPLS, by linking and mobilizing multiple stakeholders and knowledge systems. It provides recommendations for policymakers, practitioners in the public and private sectors, and local coordinators in Japan and other countries with SEPLS. The information presented here is mainly based on research conducted on the Noto Peninsula of northern Ishikawa Prefecture in Japan. In 2011, Noto became the first region in the developed world to be recognized under the Globally Important Agricultural Heritage Systems (GIAHS) initiative of FAO.

1. Mapping Ecosystem Services

Mapping enables stakeholders to better understand the spatial distribution of ecosystem services. It also facilitates better analysis of the current situation, leading to better decision making, by clarifying the interrelatedness of various socio-ecological factors.

Selecting Critical Areas

Mapping ecosystem services and building an ecosystem inventory enables the effective selection of critical areas for the conservation of biodiversity and ecosystem services (Hashimoto et al. 2015). Predicting future trends based on these approaches helps policymakers to develop appropriate countermeasures. For example, a strong positive correlation has been identified between forest areas and regulating services such as flood mitigation, water

retention, and soil erosion control on the Noto Peninsula (see Figure 1). Therefore, converting forests to other uses would be likely to reduce regulating services. Additionally, cultural heritage and scenic sites along the coastal areas have been found to be highly valued by the local community. Many of these span more than one municipality (Uchiyama & Kohsaka 2016), making information like this useful for identifying priority areas when recommending collaborative approaches for their governance.

Predicting Future Trends

Future trends of ecosystem services can be forecast by looking at land use and climate change models. For example, UNU-IAS models predict that by 2030, soil retention would be reduced in the majority of Ishikawa Prefecture, particularly around Noto, if urbanization in flat areas and farmland abandonment were to increase and rainfall patterns were to change simultaneously. A similar modelling approach should be incorporated into national and regional strategies for biodiversity conservation and sustainable use, which promotes multi-level governance.

Promoting Conservation of Farmland

There is an urgent need to evaluate the effectiveness of agri-environmental schemes, because providing adequate incentives for farmers is key to sustaining healthy farming communities and the ecosystem services that they help to maintain. UNU-IAS research on the efficacy of such schemes in preventing farm abandonment, using mapping

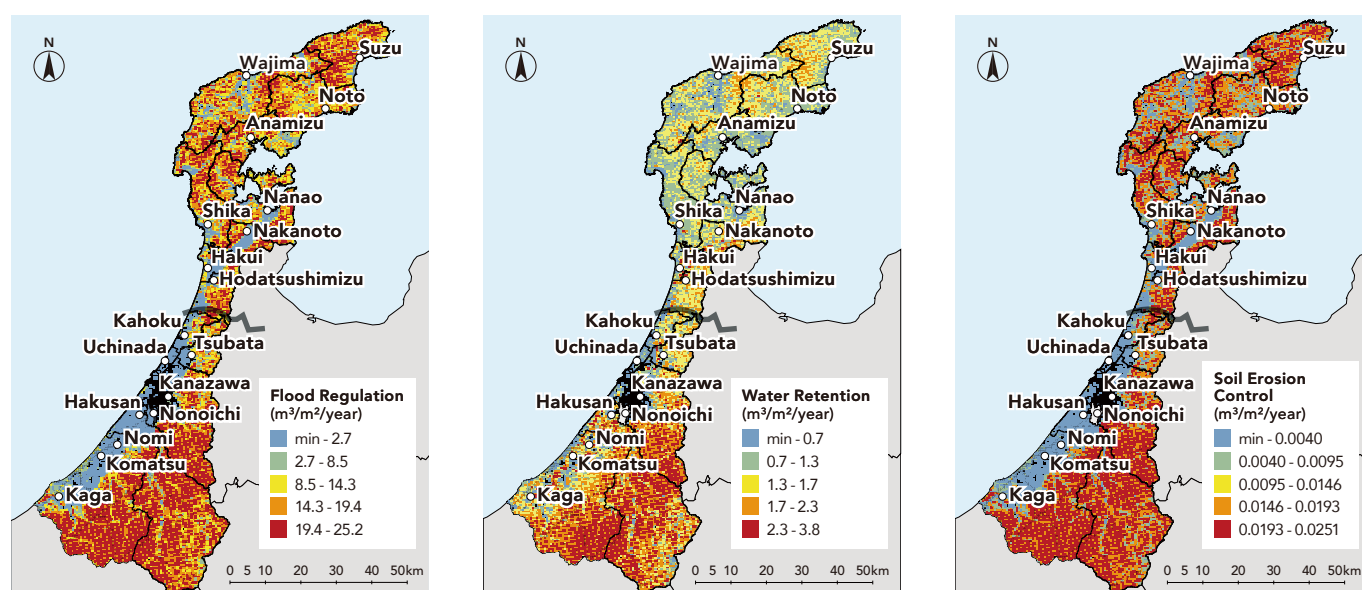


Figure 1: Spatial variation of flood mitigation, water retention, and soil erosion control across Ishikawa prefecture. The thick grey line between Houdatsushimizu and Kahoku on each map indicates the boundary between the Noto and Kaga regions. Source: Hashimoto et al. 2015

of ecosystem services and geographical information, has revealed variations depending on the conditions and the types of farmland. In cases where farmers had access to multiple schemes, such as the “Direct Payment for Farmland in Hilly and Mountainous Areas” and the “Farmland and Water Conservation Grant”, the sustainability of farm cultivation was improved by the complementary functions, compared to having access to only a single scheme. Simply providing these schemes for farmers, however, was not sufficient to increase the area of conserved farmland. Policymakers need to actively engage farmers through a series of workshops to help them learn about low-input farming practices and understand the value of conserving ecosystem services. Another potential strategy for reducing labor shortages would be to encourage actors from the private sector to engage in farming using abandoned land. Understanding the needs and expectations of the community is crucial to establishing successful collaboration (Tomiyoshi et al. 2014).

2. Quantifying Hidden Ecosystem Services

Shedding new light on ecosystem services that have largely been unquantified has the ability to generate added value and promote further improvement of community resilience and quality of life.

Enhancing Community Resilience

Household food production increases community resilience by ensuring food availability in emergencies caused by climate change, natural disasters, or social changes such as aging and shrinking rural populations. Globally, it is a common practice to produce food in home gardens and/or actively collect it from the surrounding area, including mountains and the sea. Quantifying the variety and quantity of such non-market foods consumed within a region would enable a more accurate estimation of its consumption relative to market foods. Interviews conducted by UNU-IAS have revealed that a surprisingly high proportion of non-market foods (i.e., self-produced), ranging from 50% to 80%, is being consumed on the Noto Peninsula (Kamiyama et al. 2016a). Rural households in SEPLS throughout Japan also consumed a greater variety and quantity of non-market foods than those in urban areas (Kamiyama et al. 2014). Such assessments should be considered in local governance, especially in rural areas, and should also be integrated into the accounting system for “Food Supply Capability” proposed in 2014 by the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF), which gives a better estimation of the food that would be available in emergency situations compared to the “Food Self-sufficiency Ratio”, which had traditionally been

used by MAFF. Quantifying non-market foods would also contribute to achieving Sustainable Development Goal (SDG) 2 on hunger and food security, specifically targets 2.3 and 2.4 (UN 2015).

Providing an Alternative Network for Sharing Ecosystem Services

Home-based food production and sharing can act as an alternative network for the sharing of ecosystem services among local communities (Kamiyama et al. 2016a). Such non-market networks generally have played an important role in maintaining a good quality of life in SEPLS, not only as a source of nutrition, but also in enhancing the social capital, resilience, and cultural identity of communities. Nonetheless, the social capital associated with producing and sharing foods has arguably been eroded, especially in rural areas where rapid population ageing and decline have hindered such practices. Thus, it is important to identify the appropriate forms of support and governance required to facilitate further sharing of non-market foods, thereby improving food security in SEPLS.

The alternative food networks are also closely linked to cultural services. In Noto, for instance, many varieties of home-grown or home-collected foods are essential ingredients in various traditional festivals and social events. Of these, a relatively high proportion are still being grown and collected by the local communities, and they have been responsibly managing these foods. Encouraging sustainable management through collaboration is very important because, through these foods, traditional knowledge and skills are being passed on to younger generations. However, possessing traditional knowledge can often interfere with uptake of modern knowledge, particularly among older and more experienced farmers (Kohsaka et al. 2015). Hence, it is crucial to examine the dynamics of the two knowledge systems and find a solution for better integration.

3. Developing Incentives to Engage in Nature

Analyses of synergies and trade-offs in ecosystem services management have shown significant correlations between various ecosystem services and mosaic landscapes, which are a typical feature of SEPLS (Kamiyama et al. 2016b). In Japan, many rural people engage in agriculture, fishing, and/or forestry simultaneously and, therefore, have a deep connection to the surrounding mountains and the sea. This has helped maintain the renowned features of satoyama landscapes for decades.

This way of living, however, has also been undergoing unprecedented changes in recent years, and the loss of such connections poses a serious concern. For example, the reduction of forest management has resulted in reduced harvests of edible plants and wild mushrooms (Nakazawa et al. 2014). Furthermore, the proportion of agricultural income in household income has declined from 40% to 10% over the last 40 years on Noto. Providing adequate incentives to engage in such activities is crucial for building societies harmonized with nature, so that people can continue to secure multiple incomes to make a living. One example of a promising incentive in many countries is certification systems, which have the potential to improve market recognition, secure premium payments, and gain access to niche markets — for particular regions, landscapes, and/or products, associated with conservation of ecosystem services. Geographical indication systems, in particular, can help to ensure the maintenance of mosaic landscapes as they aim to protect cultural heritage and rural landscapes by securing the livelihoods of producers. These new approaches need to be better understood and strengthened so that the relationships between producers and consumers can be improved. Because this is key to reinvigorating collaboration between primary industries, within and beyond the communities, these approaches can strengthen local governance of SEPLS.

Note

This policy brief is based on UNU-IAS research, including interviews with policy administrators and stakeholders, conducted between April 2013 and March 2016 on the Noto Peninsula in Ishikawa Prefecture, Japan. The research and brief are part of the projects “The Tradeoff Analysis and Local Governance Model of Satoyama Ecosystem Services” and “Predicting and Assessing Ecosystem Services and Natural Capital (S15)”, funded by the Environment Research and Technology Development Fund of the Ministry of the Environment, Japan.

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