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EXPLORING VALUES EMBEDDED IN POLICY OPTIONS OF THE CULTURAL LANDSCAPES OF JAPAN THROUGH THE NATURE FUTURES FRAMEWORK

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Introduction

Cultural landscapes are "areas as perceived by people, whose character is the result of the action and interaction of natural as well as human factors" (Ives et al., 2017). These landscapes have historically emerged from the interactions between cultural values, traditions, and land-use practices (Muhar et al., 2018), yielding several benefits and Ecosystem Services (ESs) for human well-being (Buijs et al., 2019; Díaz et al., 2018). These areas represent a closely woven relationship between nature and culture, which symbolizes and recognizes the fundamental links between communities and their natural and cultural heritage (Jacobs et al., 2016).

Recognized by the UNESCO World Heritage Convention, various initiatives have emerged, such as the Satoyama Initiative,[1] with an aim to foster the management and sustainable use of biodiversity and ESs in cultural landscapes referred to as "Socio-ecological production landscapes and seascapes" (IPBES, 2022). Further, the Food and Agriculture Organization of United Nations (FAO) works to conserve and recognize globally significant agricultural systems and practices, including their landscapes, biodiversity, traditional knowledge, and culture through designation of Globally Important Agricultural Heritage Systems (GIAHS) (Díaz et al., 2018). The adoption of the "protected landscapes" approach by the International Union for Conservation of Nature (IUCN) and also UNESCO Man and Biosphere (MAB) programme also recognizes the vital connections between nature, culture, and community as essential for the lasting sustainability of nature conservation, management, and restoration efforts (MEA, 2005). All these initiatives are working towards preserving both biological as well as cultural diversity alongside exploring pathways leading to a sustainable future by managing natural resources in cultural landscapes. Additionally, these landscapes exemplify sustainable land-use methods tailored to the unique local attributes and constraints of their natural surroundings (Kenter et al., 2015). Consequently, studying cultural landscapes can bolster contemporary sustainable land-use practices that can enhance the nature-culture values of these landscapes and strengthen long term conservation efforts for human well-being.

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Values, in the context of these cultural landscapes, represent the diverse significance that nature, ecosystems, or ecosystem services (ESs) hold for local communities (Chan et al., 2016). Scholars argue that these values are shaped by spatial and historical contexts, embodying relationships and meanings that link people to their environments and ecosystems (O'Neill et al., 2008). Essentially, these values serve as tools to categorize, inform, and understand diverse human-nature relationships (Tadaki et al., 2017). Considering their pivotal role in addressing the ongoing climate and ecological crises, recent research has emphasized the importance of understanding these multifaceted human-nature relationships to foster a transition toward sustainable futures (Buijs et al., 2019; Chan et al., 2020; Gould et al., 2023; Ives et al., 2017; Muhar et al., 2018). While the boundaries of research on the values of nature are not precise, it encompasses cultural ecosystem services (CES), relational values, social values, and the multiple values of nature (Chan et al., 2016; Kenter et al., 2015). According to Hirons et al. (2016), in CES, value is considered as "evaluative beliefs about the worth, importance, or usefulness of something or about moral principles" (Hirons et al., 2016, p. 556), while Kenter et al. (2015) note that the concept of social values and relational values have emerged as responses to limitations within CES frameworks. It is evident that despite being crucial, CES continue to be understudied, undervalued and widely misunderstood (Chan et al., 2012; Díaz et al., 2015; Kenter et al., 2015). The diverse conceptualizations and typologies within CES, alongside a variety of methods that lack clear theoretical foundations, continue to pose challenges in effectively capturing, understanding, and informing CES approaches and frameworks (Kenter et al., 2019).

In response, new frameworks have emerged through studies delving into a diverse valuation of ecosystems, like the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) values assessment (IPBES, 2022), which focuses on exploring the theory, methods, and practical aspects of valuing nature. Typologies for plural valuations of nature, which includes worldviews and knowledge systems, include specific values like instrumental, intrinsic and relational values (Kenter et al., 2019; Raymond et al., 2023). Capturing all three values can be achieved through a pluralistic value-based framework known as the Nature Futures Framework (NFF), recently proposed by the IPBES scenarios and models task force and formally approved by IPBES Plenary in 2023 (IPBES, 2023). The NFF builds on ongoing scholarship that recognizes the need for a diversified framing of the values of nature and its contributions to people (NCP), including an emphasis on relational values (Chan et al., 2016). Through this framework, we explore the intangible benefits and values of nature, broadly defined as the non-material contributions of ecosystems to human well-being (Muraca, 2016), as well as the values attributed to nature by people or communities (FOA, 2018; Ichikawa and Yiu, 2016). With this background, the research tries to capture the diverse values rooted in the cultural landscapes of Japan.

We studied cultural landscapes (also referred as "socio-ecological production landscapes and seascapes"-SEPLS) under the International Partnership of the Satoyama Initiative (IPSI) and Globally Important Agricultural Heritage System (GIAHS) networks. Both these are working towards the revitalization of bioproduction systems within cultural landscapes, which are witnessing diminishing biodiversity and ESs (Dharmarathna et al., 2012; Takeuchi et al., 2018). These bioproduction systems produce goods and services, using practices that evolved over a period through Indigenous and traditional local knowledge systems, and have the potential to overcome threats against the drivers impacting natural resources. These cultural landscapes showcase co-existence of humans and nature in harmony (IPBES, 2022), and hence are excellent study sites for considering how diverse values interact. The case-studies from the IPSI network aim to integrate traditional ecological knowledge along with modern science, to develop innovative management practices (Ichikawa & Yiu, 2016), while the GIAHS-designated case-studies work

towards embodying sustainable practices to enhance the socio-economics of the traditional agriculture systems and achieve environmental conservation goals (FOA, 2018). Hence, under both these networks the case-studies identified strive to conserve biodiversity, foster socio-economic progress of local communities, and safeguard the cultural treasures of the landscapes (Okayasu and Matsumoto, 2013). The case-study sites exemplify policy options which aim to sustainably rejuvenate local communities by revitalizing their interactions between natural processes, ecological elements, and human-made assets, leading to multiple benefits (IPBES, 2019).

Considering the crucial role of cultural landscapes in the global conservation objectives which are tied to numerous specific goals of Kunming-Montreal Global Biodiversity Framework (GBF) (CBD, 2022), it is important to understand the nonmaterial benefits and values stemming from the bioproduction systems of IPSI and GIAHS (hereafter referred as networks). These networks have been active for over decade, where through collaborative efforts they are reviving the bioproduction systems (FOA, 2008; IPSI Secretariat, 2018), and hence showcase context-specific policy options to address environmental challenges arrived at through the collective involvement of different stakeholders. Therefore, these bioproduction systems are important spaces for understanding CES "in action" (Chapter 33) in terms of the ways in which culture is intertwined with policy and landscape management. In light of this, we review the cases taken from these two networks to comprehend the inherent values associated with the policy options implemented in the cultural landscapes of Japan.

The primary goal of this chapter is to examine how the networks are actively working to rejuvenate the bioproduction systems in the cultural landscapes of Japan by investigating the diverse values associated with policy options. To accomplish this objective, we systematically analyse the policy options outlined in the case studies identified by the networks by using the NFF to ensure a comprehensive understanding of the diverse values connected to nature within cultural contexts (Green et al., 2015; Mace, 2014; Pascual et al., 2017). By gaining insight into the diverse values that hold significance for local communities, we elicit and discuss the association between these values and policy options. These findings could guide policymakers to meaningfully incorporate values into policy choices and understand their association.

The following sections of this chapter will provide explanations of the case studies considered, the framework used to filter policy options, the methodology employed, and reflections presented through the results and discussion section.

Materials and methods

Case-study selection and document review

We examined the cases identified by the two networks and published between 2007 and 2021 for document review because they share similar concepts and objectives, despite being branded and/or institutionalized by different organizations (Uetake et al., 2019). In total, we reviewed 28 cases (Supplementary online Table 26.1). We collected the documents from various sources; for IPSI cases, we referred to the online database hosted by the Secretariat of IPSI and publications by the Satoyama initiative. The literature for the GIAHS cases was procured from the FAO website (http://www.fao.org/giahs/en/). The data collection involved systematic organization and categorization of data and documents from the 28 cases (Figure 26.1). In each instance, these documents were produced by stakeholder engagement and are submitted by partner organizations. Hence, our analysis of these cases provides key insight into stakeholder value structures. The examined cases encompass practices, strategies, or policies suggested or implemented to address specific problems, referred to here as "policy options."

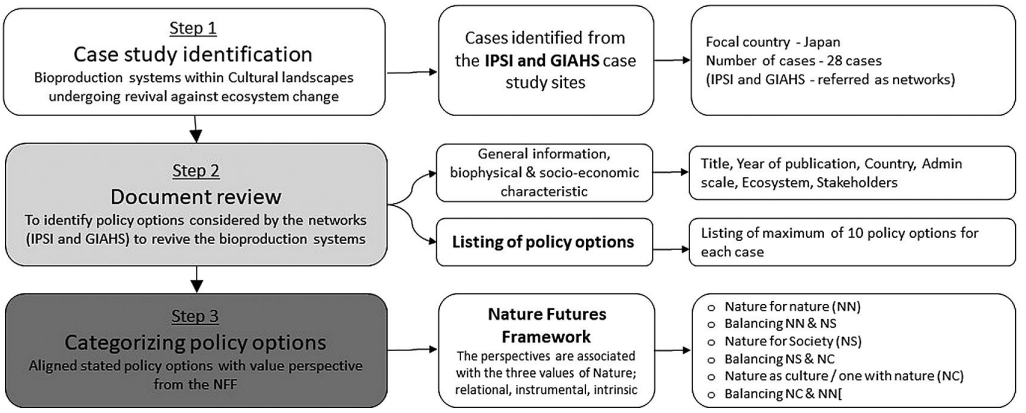

Figure 26.1 Steps followed for document review of the identified cases from the networks in Japan, listing of policy options and the framework used to categorize them under different values linked to the NFF.

Source: Figure by author.

For each case, we reviewed a maximum of ten policy options; in cases where fewer than ten policy options were identified, the corresponding cell was marked as 'not indicated'. It is important to mention that the listing and filtering process did not consider the effectiveness or implementation stage of the policy options. In addition to enumerating the policy options, we collected data including general information on each case-study, bio-physical and socio-economic characteristics, stakeholder details, and identified drivers for these cases. However, in this chapter we only focus on the policy options. For more details about the data collection process and the data variables considered, see Lahoti et al. (2023).

Categorizing policy options

We used the NFF to assess the policy options, focusing on the three core values of NFF to associate each policy option with the closest descriptive characteristics. Since many policy options were not limited to one descriptive characteristic, wherever needed we linked up to three descriptive characteristics with each policy option where applicable. The final value assigned to the policy option was based on the prominence of descriptive characteristics. A balancing value between the two core values was assigned if the policy option showed mixed descriptive characteristics from two different values. Otherwise, predominant descriptive characteristics allowed us to identify the values associated with policy options in few examples as shown in Figure 26.2. To discern the alignment between the prevalence of specific values and policy options, we conducted a thorough examination of policy options and their corresponding descriptive characteristics. This analysis provided invaluable insights into the effectiveness and cohesiveness of policy options that promote sustainable practices. For this we considered 252 descriptive characteristics representing the six values of the Nature Futures Framework (NFF) alongside the 185 policy options. In the case of some policy options, we held a consultation meeting with team members to arrive at the agreed categorization. As some of the response options were generic with implications over the multidimensional space of NFF, they were considered as crosscutting. These crosscutting policy options relate to all the three core values and cannot be characterized under one value.

Policy options	Descriptive characteristics	Descriptive characteristics	Descriptive characteristics	Assigned value perspective
Stable production of agriculture and forestry products with added values for products from ASO using environmentally-friendly methods	Bioeconomy (NS	XXX	XXX	Nature for society
Stable production of agriculture and forestry products with added values for products from ASO using environmentally-friendly methods	Community-based management (NC)	Management improves biodiversity (BSC)	XXX	Balancing "nature for society" and "nature as culture"
Stable production of agriculture and forestry products with added values for products from ASO using environmentally-friendly methods	Ecological integrity (NN)	Sustainable use and management (NS)	Technology friendly (BNS)	Balancing "nature for nature" and "nature for society"

Figure 26.2 Examples showing filtering/ categorizing of policy options using the descriptive characteristics associated with the six value perspectives of the NFF.

Source: Figure by author.

Pluralistic value-based framework - nature futures framework (NFF)

The NFF underscores the significance of a diverse understanding of values, in contrast to monistic approaches to human-nature relationships that are characterized by the dominance of a single worldview (Pereira et al., 2020). It recognizes the diverse ways in which people relate to nature in order to work towards a more desirable future. The framework can assist in developing nature-centred scenarios (IPBES, 2023; Kuiper et al., 2022; Pereira et al., 2020). Studies have demonstrated that it could be used as a template to synthesize pluralistic perspectives of nature (Quintero-Uribe et al., 2022). In fact, IPBES strongly encourages the scientific community and stakeholders, including indigenous groups and local communities, to use the NFF for building scenarios in regional case studies and to assess their potential and constraints (Lundquist et al., 2021).

In the NFF, distinct connections between humans and nature can be charted across a space defined by three axes. The axis corresponds to three primary viewpoints regarding the value of nature; (1) nature for nature (NN), (2) nature for society (NS), and (3) nature as culture/one with nature (NC) (IPBES, 2023; Pereira et al., 2020) (Figure 26.3). The NN incorporates intrinsic and instrumental values such as existence values and non-material benefits, while NS primarily emphasizes a subset of instrumental values, including both direct and indirect use values. NC encompasses relational values alongside the non-material benefits associated with cultural interpretation and construction of nature (Pereira et al., 2020). The NFF's value perspectives also encompass a multi-dimensional range within these three values, with varying preferences in intermediate spaces with three additional viewpoints to balance the core values (Kim et al., 2021; Lundquist et al., 2017). Subsequently, we employed six value perspectives to screen the documented policy options (Figure 26.3), and the descriptive characteristics under each viewpoint are listed in supplementary material as Figure S26.1). We then tallied the total number of policy options from our collective data set that aligned with each descriptive characteristic and the associated values laid out by the NFF (Figure 26.4).

Results and discussion

Policy options and their alignment with core values of NFF

Among the studied cases, the administrative scale was regional (over 50% cases), followed by village (21%), and municipality (18%). The majority of the ecosystems belonged to forest ecosystems

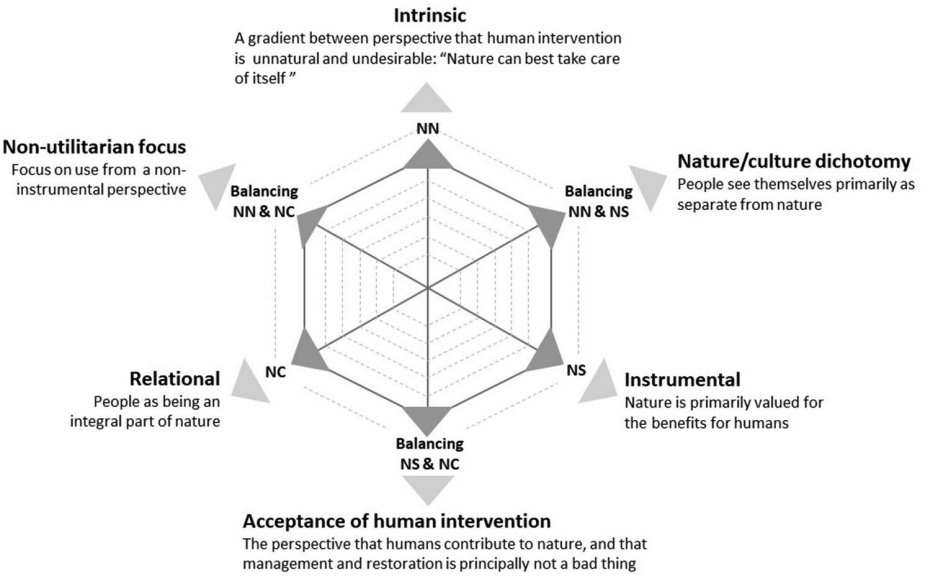

Figure 26.3 Values associated with the Nature Futures Framework (adapted from Durán et al., 2023).
Source: Figure by author.

(32%), followed by agro-ecosystems (24%). In our examination of 28 cases (comprising 18-IPSI and 10-GIAHS), we identified a total of 185 policy options. Categorizing these policy options using the NFF unveiled multiple characteristics associated with different values. Each policy option was linked to one to three descriptive characteristics, leading to a total of 252 descriptive characteristics. Based on the prominent descriptive characteristics, 185 policy options were linked to 185 values (Figure 26.4). This revealed a strong preference for NC values, constituting 36% of the policy options. Followed by NC values, a balance between the NN and NS values accounted for 18% (Figure 26.4). Following this NN values were seen in 11% of cases, however despite being cultural landscapes, the priority for balancing "nature as culture" and "nature for nature" was the lowest (9%).

Notably, policies emphasizing 'sociocultural and behavioural' responses and adopting a 'community-based management' approach played a pivotal role in elevating the prominence of NC values (Figure 26.5). Furthermore, we observed that policy options centred around 'nature conservation' and 'ecological integrity,' as represented by the NN value, held paramount significance when compared to 'technology-friendly' and 'market-based' approaches, which contributed to a balance between NN and NS values. Due to apprehensions regarding land abandonment in Japan (Oono et al., 2020), policy options that advocate for preservation and land sparing are not being prioritized. Instead, approaches like 'technology-friendly' and 'market-based' were given preference, indicating that through these policy options, networks aimed to revitalize cultural landscapes while nurturing the intricate human-nature relationship (e.g., in establishing balance). Moreover, the association of policy options with NS values indicated a strong emphasis on 'bio-economy' and 'sustainable use and management' over other approaches. These NS values underscored the focus on revitalizing landscapes by enhancing the local economy through sustainable practices, accounting for 10% of the policy options. Moreover, NC policy options played a catalytic role in mobilizing bundles of NN and NS policy options.

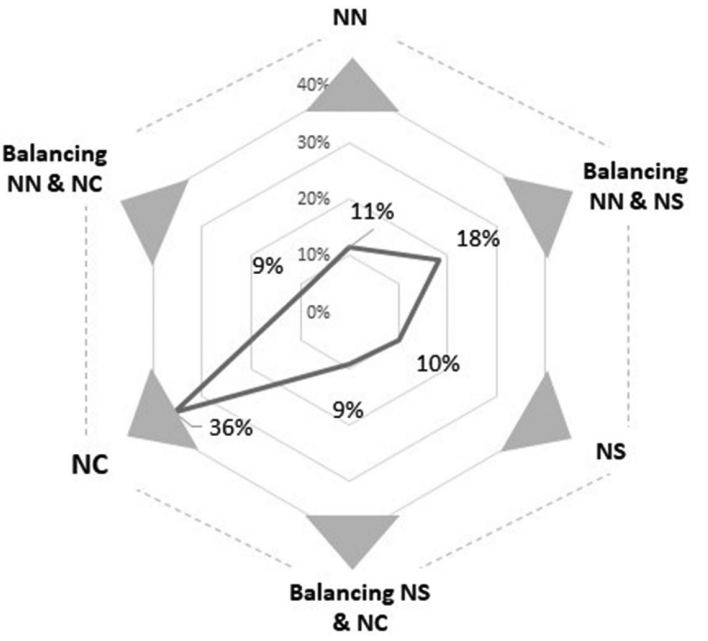

Figure 26.4 Policy options association with core values of NFF.

Source: Figure by author.

Policy pathways: navigating the spectrum of values

The 'Nature as Culture/One with nature' values emerged as the most prominent, followed by 'Nature for Nature' values, and then 'Nature for Society' values. Consequently, we delve into these core values and their connections to policy options through some examples

'Nature as Culture/One with nature' values: The policy options aligned with these values primarily emphasized social, cultural, and behavioural responses. Some of these policies encompass promotion of Satoyama initiatives nationwide, and establishment of new knowledge systems integrating cultural practices. Examples include: (1) educational activities aimed at promoting the town's environmental plan; (2) implementation of Satoyama practice-oriented curriculum for leaders; or (3) Information sharing through coordination centres to transfer the valuable Satoyama culture to younger generations. These endeavours aim to foster an integrated knowledge system through community involvement for sustainability of bioproduction systems (Takeuchi et al., 2018). Moreover, policy options aimed to enhance cultural and relational values, which are often intertwined; that is, not only enhancing food and habitat provisioning but also resulting in additional CES like education, motivation, and self-identification (Takahashi et al., 2022). The policy options focused on organizing training programs and workshops, awareness-raising events, educational campaigns, aiming towards preservation and promotion of traditional practices rooted in local community culture (Lahoti et al., 2023). These values are strongly associated with relational values and interlinked with CES (Himes et al., 2024). By emphasizing nature as culture values, these policy options derived meaningful and reciprocal relationships between human and nature (Chan et al., 2016) and propagated stewardship and living in harmony with nature (Himes et al., 2024).

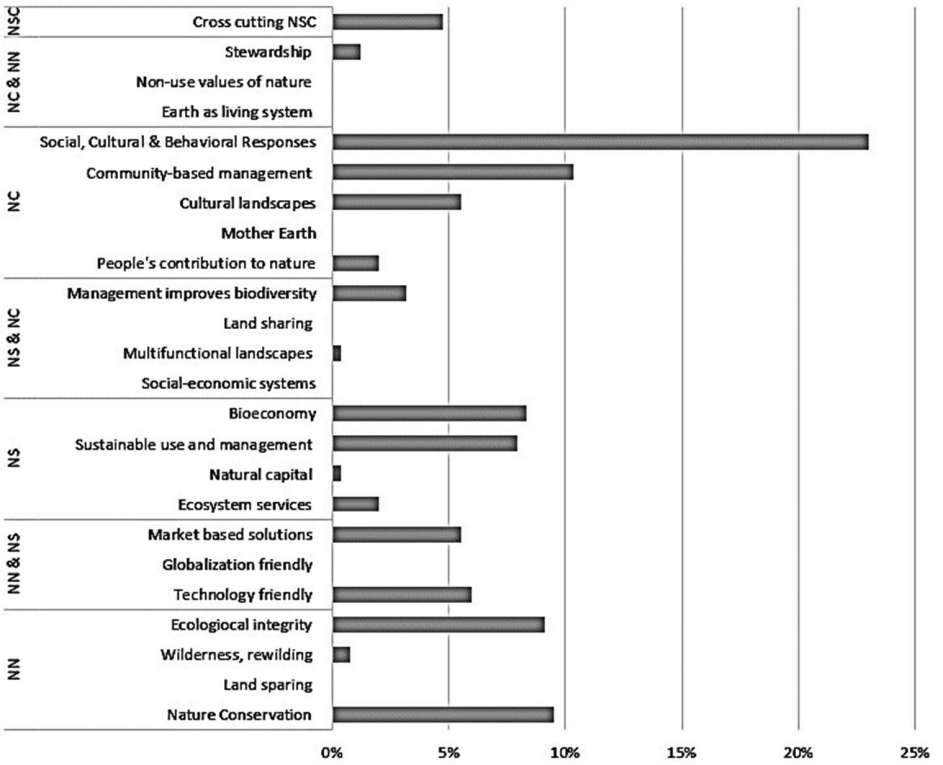

Figure 26.5 Policy options associated with individual descriptive characteristics under each value of NFF.
Source: Figure by author.

In these cultural landscapes, the community is considered an integral part of the landscape. Farmers and local communities co-manage the natural resources, governed by communal rules and arrangements following cultural practices deeply intertwined with traditional skills, shaping their cultural identities (Reyes et al., 2020). Additionally, they foster individuals' sense of place and their values towards nature. The networks closely engage with the community, as well as local and regional governing bodies to foster a robust governance structure that involves a multitude of stakeholders in the revitalization of bioproduction systems, which is also aligned with target 22 of the GBF. Recognition of the natural and cultural values linked to landscapes with support from stakeholders leads to added value in goods and services like tourism or new forms of agri-environmental use (Flinzberger et al., 2020; Plieninger et al. 2020). For instance, in Kanakura, the entire community is working together to revive abandoned rice paddies, reversing the encroachment of homogeneous vegetation into species-rich environments. In the process, the whole village has turned into an eco-museum that links the landscape with local history and culture, which attracts urban populations (IPSI Secretariat, 2018). This clearly highlights the heightened emphasis on community engagement which aligns with the network's broader objectives of enhancing coordination across sectors, involving diverse actors, and scaling up the management of these bioproduction systems (Kozar et al., 2019).

'Nature for Nature' values: The networks primarily achieve these values by implementing policies that prioritize ecological integrity and adhering to conservation protocols. One example

are practices of traditional rice cultivation techniques in Satoyama landscapes with diverse biotopes to significantly enhance habitats for the endangered Japanese Crested Ibis, whose survival is heavily dependent on these cultural landscapes for food and shelter. To achieve this goal, the institutional framework was strengthened by engaging multiple stakeholders and implementing integrated management approaches such as the preservation of regional diversity and cultural heritage. The preservation of endangered flora in the Aso grasslands is sustained through the application of sustainable slash-and-burn practices, as the decline of these grasslands has resulted in the encroachment of low bushes, adversely impacting the biodiversity of the region (Reyes et al., 2020). Additionally, awareness-raising efforts through Satoyama training programs was promoted (e.g., in Noto, Kaga, and Hyogo areas) (IPSI Secretariat, 2018; UNU-IAS and IGES, 2019). This initiative seeks to transfer traditional knowledge to upcoming generations and to enhance the skills of future farmers, further addressing challenges such as youth migration and an aging population (IPSI Secretariat, 2018).

Additional concrete examples that align with NN include: (1) Policies promoting tree seedling collection in Aichi prefecture, where the local communities in collaboration with companies, citizens and local governments are collecting seedlings; (2) In the Nagara river system, policies are aimed at promoting artificial spawning and release programme, preventing overfishing and protecting Ayu spawning grounds; (3) Revival of the Ume system by conserving the production site and maintaining tree vigour using modern techniques to stabilize ume (*Prunus mume*) production. Through restoring ecosystems and reintroducing valuable species via repopulation or natural feed aquaculture, food provisioning, local livelihoods, and biodiversity can be simultaneously enhanced. Co-management in conservation zones and protection for threatened species have played a crucial role in managing trade-offs between food provisioning over time and maintaining biodiversity (Reyes et al. 2020; Takahashi et al., 2022).

'Nature for society values': Policy options emphasizing societal values are pivotal in nurturing sustainable economies within cultural landscapes. These policy options employ a multifaceted approach to enhance the economic well-being of local communities while concurrently safeguarding ecological integrity. Some of the approaches used in the cases studied include creating markets that incentivize and reward sustainable practices, catering to the local community's needs. This is identified as an effective strategy allowing added value to locally produced goods whereby communities prioritize ecological well-being and elevate local producers' economic viability (Sehra and MacMillan, 2021; Takahashi et al., 2019). For instance, promoting crops for their health benefits, backed by scientific evidence, such as the case of *ume*, can boost sales and influence consumer preferences positively, while further branding of the products contributes to national and international recognition, in turn boosting livelihoods by allowing new economic avenues. Nonetheless, it is evident that socio-economic values are considered to enhance the resilience in the bioproduction systems, thus encompassing new commons (social) and new business models (economic) (Reyes et al., 2020; Takahashi et al., 2022).

Other approaches to enhance instrumental values of landscapes include strengthening the production base by providing new machinery to improve efficiency and encouraging the establishment of new local industries, or further extending support to the development of eco-tourism and agritourism, facilitating the growth of local enterprises (Takahashi et al., 2019). Moreover, efforts were made by involving NGOs and NPOs for the effective utilization of abandoned or underutilized cultivated lands. By optimizing the use of previously neglected lands, communities can bolster their economic prospects and mitigate the ecological impacts of land abandonment (Kohsaka et al., 2021; Reyes et al., 2020). By diversifying local economies and integrating traditional

practices into business models, communities can enhance their ability to adapt to changing environmental conditions while preserving cultural heritage and ecological integrity (Takeuchi, 2010).

Conclusion

In conclusion, the cultural landscapes of Japan, as depicted by the policy options created within the IPSI and GIAHS networks, demonstrate a clear embrace of value diversity across various administrative scales and ecosystem types. The prevalence of 'Nature as Culture/One with nature' values within bioproduction systems emphasizes the profound importance of relational values, highlighting the interconnectedness of human-nature relationships. We believe this highlights the ways in which consideration of CES must always be intertwined with place, recognizing the synergetic relationship between well-being, society and culture and transcending disciplinary barriers to effectively capture plural values in cultural landscapes. Using NFF to contextualize where CES emerge in policy options further emphasizes the role of these functions in bringing together diverse disciplinary perspectives and worldviews.

Relational values are complemented by the mobilization of intrinsic and instrumental values, indicating the inclusion of diverse values leading to the empowerment of local communities to extend the focus beyond economy and environment-centric approaches (Tadaki et al., 2017). Some noteworthy examples include the 'ibis-friendly farming method' in Sado, the 'reintroduction of white storks' in Toyooka City, and the preservation of the 'traditional system of Shiitake cultivation' in the Usa area of the Kunisaki Peninsula, which exemplify how diverse values are embraced in these landscapes. The prioritization of policy options towards eco-cultural revitalization signifies a shift towards sustainability and harmony. The revival is achieved by rekindling of traditional systems and re-establishing connections through cultural values. Through these integrated approaches, which incorporate traditional knowledge and cultural practices, production is increased, benefitting the local communities. This involves active engagement with local communities, extensive outreach, capacity building, and stakeholder involvement, establishing networks for enhanced coordination across scales, and implementing restoration, conservation and sustainable use initiatives through behavioural change (Kozar et al., 2019; Lahoti et al., 2023; Reyes et al., 2020). In essence, Japan's cultural landscapes are transforming, aligning with sustainable values and practices for a more harmonious relationship between nature and society for larger human well-being.

Relational values, integral to CES, hold significant environmental implications if disregarded (Hirons et al., 2016) and play crucial roles in valuing CES, particularly those associated with pluricentric worldviews that emphasize on the interconnectedness of all beings (Chan et al., 2016). Moreover, the pluralistic values of nature embedded within these policy options align with the core principles of CES, emphasizing the significance of ecological, social, and cultural values in rural livelihoods (Ichikawa and Yiu, 2016). Recognizing and mobilizing these diverse values are crucial steps towards transformative change (Pascual et al., 2023), especially for marginalized stakeholders. Collaborative processes that balance plurality and convergence towards consensus are essential in allowing diverse values to coexist and inform decision-making (Pascual et al., 2023). Understanding the pathways leading to shifts in values is imperative for policymakers to meaningfully incorporate diverse values into public policy within changing social-ecological systems and their interactions (Denhardt and Denhardt, 2002; Kendal and Raymond, 2019). By promoting policy options reflecting value plurality, Japan can further enhance its efforts towards sustainability and harmonious relationships between people and nature.

Acknowledgments

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Note

1 A traditional Japanese rural land-use system that represents a balanced relationship between human and nature, thereby sustaining a variety of ecosystem services. Satoyama (in Japanese) or Socio-ecological production landscape and seascapes (SEPLS) are "dynamic mosaics of habitats and land uses that have been shaped over the years by the interactions between people and nature in ways that maintain biodiversity and provide humans with goods and services needed for their well-being" (UNU-IAS, 2010).

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