

# Evaluating Cultural Values of the *Satoyama* Using the Preference Method

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## Abstract

We tried to estimate the values of ecosystem services using the stated preference method and the revealed preference method, with the objective of incorporating these values into the basic concept of ecosystem goods and services, a tool used in decision making processes, in order to create a new “commons.” The dataset from “The Top 100 Japanese Rural Landscapes” showed that rural Japanese landscapes, known as the *satoyama*, have great cultural value related to tradition and history. Many people feel a sense of “homeland” or belonging concerning paddy fields, villages and people’s old settlements. At the same time, villages surrounded by nature give them a sense of seasons, time, and the presence of other living organisms. These are services that the urban landscape cannot offer. The dataset of “questionnaires to people who are not particularly involved in *satoyama* movements” also demonstrated the image of the rural landscape with the attributes of nature, mountains, rivers, forests, homeland and a place for relaxation. At the same time, it revealed that 10% of people felt that they would like to live in rural areas in the future. Jobs such as “attractive agriculture,” the renewable energy sector or “telecommuting” to offices using the Internet, along with opportunities for social interaction are required for people to live there or to consider double residency in urban and rural areas. Paying a premium for “environment/organism brands” by urban people can be considered payment for ecosystem services (PES) to promote monetary contribution to maintain the *satoyama*.

**Key words:** cultural service, double residency, “environment/organism brand” products, homeland, questionnaires

## 1. Introduction

In light of the Millennium Ecosystem Assessment (2005), framework and a previous study pertaining to interlinkage (Iftikhar *et al.*, 2007), three types of interlinkage are indicated: (1) among the ecosystem services themselves (2) between ecosystem services and human well-being and (3) between time and space. Among the ecosystem services, cultural services are defined as “non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experience” (Millennium Ecosystem Assessment, 2005). Their values are hard to estimate, partly because the cultural services are a mixture of various and uneven elements, and partly because these values exist in only people’s mind. The secondary forest attached to agricultural villages, which used to provide wood, charcoal and organic fertilizer is

known as the *satoyama* proper. However, in the modern Japanese context the *satoyama* has only a limited economic influence in providing provisional services for various industries, and most Japanese rural landscapes have lost their function and been abandoned or incorporated into urban fringes as a result (Brown & Yokohari, 2003). The importance of cultural services which provide the feeling of “homeland” has increased a lot compared to the era when the *satoyama* had considerable value for its provisioning services.

More than a decade ago, the *satoyama* began to be recognized as a hub of biodiversity (Fujii 1979; Fujii & Shibata, 1981; Hamada & Kuramoto, 1994; Hayama *et al.*, 1996; Ishi, 2005). It was later revealed that constant human intervention had provided an environment well suited to native Japanese species that had adapted to constant natural disturbances such as earthquakes, storms and volcanic activity (Washitani, 2001). Additional

studies also highlighted the importance of habitats in agricultural fields (Moriyama, 1997; Saito *et al.*, 1988), and along with the development of landscape ecological studies in the 1990s (Numata, 1996), the *satoyama* came to be regarded as a collective unit of a secondary forest and its surrounding elements such as cultivated land, grasslands, small rivers, ponds and reservoirs for irrigation that were once connected with the traditional agricultural system. It is also sometimes called a “*satoyama* landscape” (Takeuchi *et al.*, 2003; Fukamachi *et al.*, 2001). Due to the decline of biodiversity followed by abandonment of secondary forests, as well as disappearance of traditional agricultural systems, many studies have been conducted to understand the relationship of the *satoyama* with the traditional management system in order to create new *satoyama* and *satoyama* landscape management systems. Those studies mainly focused on paddy field agricultural systems (Fukamachi, 1998; Kanata, 2000).

Because of the importance of the *satoyama* which has preserved biodiversity in Japan as well as providing various ecosystem services, we have to look for non-conventional methods to preserve the *satoyama*. The *satoyama* has been maintained by individuals or the local community who benefit from its provisional services (Fukamachi, 1998; Kanata, 2000). However, we need to create a new “commons” which can be maintained by a broader range of people who receive the regulating and cultural services provided by the *satoyama*.

In this paper, we try to estimate the value of these services using the stated preference method and the revealed preference method with the objective of incorporating them into the basic concept of ecosystem goods and services. In particular, we have focused on the possibility of double residency in urban and countryside areas, and the additional value of “environment/organism brand” products as tools for decision making processes for creating a new “commons.”

Double residency can be considered as a measure which governments, both local and national, can take to increase the number people who are involved seriously in *satoyama* maintenance. We wanted to know the ratio of people interested in double residency and the problems which hindered people who would otherwise do it. On the other hand, a number of people may not be interested in living in rural areas. Another measure urban people can take is to promote monetary contribution to *satoyama* initiatives. Recently, “environment/organism brand products” have been receiving attention as a measure for payment for ecosystem services (PES). More than 30 “organism brands” of rice are being sold on the Japanese market, *e.g.*, Oriental Stork rice, *Medaka* (Killifish) rice, Japanese Water Beetle rice, all named after endangered species living in *satoyama* landscapes. These “organism brands” of rice are ca. 10%–25% more expensive than normal rice. It is important to assess people willing to pay (WTP) for such environment-consciousness additional values as PES in order to utilize market mechanisms to maintain *satoyama* ecosystem services.

## 2. Methods

In 2008, the Asahi Shimbun Company, one of the biggest newspaper companies in Japan organized “The Top 100 Japanese Rural Landscapes” contest to select the 100 best Japanese rural landscapes, using a system of public nominations. The question asked was, “Where is your favorite rural landscape, and why?” The general public wrote the name of a place and the reasons for their selection in an open answer. The criteria were landscapes, biodiversity and human activities.

Asahi Shimbun collected 4,474 nominations from the public for about 3,022 nominated sites. We classified the nominated sites into six landscape types: forests, mixed, paddy fields, other agricultural, urban & suburban, and coastal landscapes, using a non-hierarchical cluster analysis combined with geographical data such as land-use provided by the National Land Information Office in 1997, mean altitude provided by the National Land Information Office in 1981 and height range provided by the National Land Information Office in 1981 (Iwata *et al.*, 2011). Also, keywords that appeared more than 100 times in the written appeals for each nomination were extracted using SPSS Text Analysis for Surveys 3.0 Japanese (SPSS Inc., 2007), and the relationship with the landscape types was examined using cross analysis ( $\chi^2$  test; SPSS Inc., 2007; Iwata *et al.*, 2011). In this research, further analysis was conducted by extracting the words that appeared more than ten times. This provided the authors with more detailed insights into the values people expressed in their written appeals. SPSS Text Analysis for Surveys 3.0 Japanese (SPSS Inc., 2007) was used to extract the words, and they were categorized into groups. Nouns, verbs and adjectives were taken as useful words, and those words that did not have useful meaning for this study were ignored.

Based on the results obtained from the analysis of “The Top 100 Japanese Rural Landscapes,” we compiled questionnaires to assess the cultural values provided by the *satoyama* to people who were not particularly involved in *satoyama* movements. The questionnaires included matters on 1) images of “rural life,” 2) double residency in urban and countryside areas, and 3) “environment/organism brand” products. Internet research covering all prefectures of Japan was conducted through Media Interactive Co. Ltd., with 8,200 individuals participating in February 2012. The ratio of male to female participants was 1:1, and the age distribution was 10-19 yrs (10%), 20-29 yrs (20%), 30-39 yrs (20%), 40-49 yrs (20%), 50-59 yrs (20%) and 60-79 yrs (10%). Attributes of individuals were also collected, including profession, school, career, hobby, birthplace (agricultural village, seashore village, urban or suburban), residential address (prefecture; agricultural village, seashore village, urban or suburban), household income, marital status, presence or absence of children, and presence or absence of professional education on environment.

The narratives and questionnaire were organized and analyzed in the Japanese language, so the English transla-

tion in this paper may have other nuances or a different atmosphere from the original Japanese.

### 3. Results

#### 3.1 “The Top 100 Japanese Rural Landscapes”

Among 4,474 nominations, the keywords most closely related to the forest type landscape (88% forest cover over 1 km<sup>2</sup>) were beauty, traditional culture and history. Those most closely related to the mixed type (60% forest, 20% paddy fields over 1 km<sup>2</sup>) were associated with biodiversity and preservation activities. Paddy field type sites (paddy fields >60% over 1 km<sup>2</sup>) were significantly associated with *furusato* (the homeland), and urban & suburban type sites (50% built-up land) were concentrated in the Kanto region, and they were nominated mainly by local citizens for their nature-related activities (Table 1).

The words used in the study were then categorized into 50 groups, which were in turn divided among nine larger groups. Table 2 shows the categories of words, the number of words in each category and the frequency of their appearance.

Figure 1 is a graph of small groups of the words that appeared more than ten times. It shows that words categorized as “village/settlement” were the most frequently used. The next most common words were those that could be categorized as “geographical features,” “history,” “landscape” and “seasons.” Those categorized as “mountains” and “water” were also often used.

Words categorized as “agricultural activity” and “rice

production” were used as much as words categorized as “senses,” “tourism,” “people” and “living organisms.”

Figure 2 shows the ratio of the larger groups. It shows that the most frequent word groups were “culture/history” and “nature/geographical features,” and the second largest was “feeling and senses.”

It also shows the larger groups divided into ecosystem services defined by the Millennium Ecosystem Assessment (2005). It shows that cultural services were most prominent, accounting for 52% of the words used, followed by supporting services including natural factors, which accounted for about 22%. Provisional services related to resource management; and agricultural activities and biodiversity, including individual species names, took up about 16% and 10%, respectively.

By using the landscape types defined in previous research (Iwata *et al.*, 2011), the correlation between landscape type and cultural services was analyzed using  $\chi^2$  test (SPSS Inc. 16.0 Japanese, 2007). In Table 3, the categorized ecosystem services are shown in the rows, and within each category, small groups of words appearing more than ten times correlated ( $P < 5\%$ ) to each landscape type are shown.

As can be seen, there are many services that are correlated with the forest type landscape, whereas only social circles, experiences and recreation were correlated with urban and suburban types. The mixed type was also correlated with life, feelings and events; the paddy field type was correlated with landscapes, sense of belonging and seasons unique to Japan.

**Table 1** Landscape types and their characteristics and keywords that appeared more than ten times.

<i>Landscape type</i>	<i>Characteristics</i>	<i>Keywords appearing frequently for each type</i>
Forest	Forest 88% High altitude and steeply sloped areas	Location & Settings, Residences, Rivers, Mountains, Water, Spread, People, Local, Local residence, Living, Visit, Past, Award for terraced paddies, Epitome/Original image ( <i>Genkei</i> ), Heart, Unique
Mixed	Forest 52%, Paddy fields 19% Other agricultural fields 10% Mountain ridges, <i>Yatsu</i> sloped lowlands	Paddy Field, <i>Satoyama</i> Biodiversity, Preserve, Award for terraced paddies
Paddy Field	Paddy fields 62%, Built-up land 15%, Forest 10% Flat lowlands	Spread, Homeland ( <i>Furusato</i> ), Paddy Field, Seasons,
Other Agricultural	Other agricultural fields 49% Forest 20%, Paddy Fields 11% 10 percent built-up land cover, Relatively high altitude and flatlands	Agricultural Fields
Urban and Suburban	Built-up land 58%, Forest 9% Other agricultural fields 9% Relatively flat lowlands	Residences, Forest, Green, <i>Satoyama</i> , Enjoy
Coastal	Ocean 80%, Forest 11% Flat lowland due to near coastline	Sea, Residences

(Source: from Iwata *et al.*, 2011)

**Table 2** Categorized words that appeared more than ten times in written phrases.

<b>Large Groups</b>	<b>Small Groups</b>	<b>Individual words used more than 10 times in each group ( ); number of appearances</b>
Landscape	View (82)	Vista (43), Sweeping View (39)
	Landscape (1329)	Scenery (547), Landscape (228), Authentic Landscape (131), Terraced Paddy Competition (124), Cultural Landscape (75), Pastoral Landscape (75), Natural Landscape (28), Contrast (25), Rural Scenery (25), Scene (17), Rural Landscape (16), <i>Satoyama</i> Landscape (15), Snowscape (13), <i>Satoyama</i> Scenery (10)
Feeling /Senses	Seasons (1303)	Seasons (247), Autumn (211), Spring (198), Summer (182), Winter (141), Autumn Leaves (81), Snow (62), Early Summer (41), Spring Shoots (39), Changing Seasons (17), Each Season (16), A Touch of Spring (14), Layers of Snow (12), Summer Time (11), Eve of Winter (11), Early Spring (10), Winter Time (10)
	Atmosphere (380)	Rusticity (46), Style (44), Atmosphere (42), Distinct (41), Remnant (41), Taste (25), Appearance (24), Uniqueness (21), Individualistic (19), Expression (17), Character of the Locality (14), Secret Places (14), Image (12), Character (10), Climate (10)
	Feeling (275)	Heart (186), Feeling (41), Discovery (24), Moving (14), Spirit (10)
	Senses (595)	Wind (51), Sound (37), Myriad (35), Sky (34), Sunset (33), Mummer (28), Color (24), Light (24), Twitter (23), Fragrance (21), Stars (18), Chirp (17), Yellow (16), Morning (16), Morning Light (15), Night Sky (15), Song (14), Blanket of Clouds (14), Smell (14), Moon (13), The Heavens (12), Starry Sky (12), Sun (12), Memory (12), Fascinate (11), Sensations (11), Innumerable Stars (11), Five Senses (11), Evening Time (11), Carpet (10), Picture (10), Body (10)
	Stories (208)	Legend (38), Stage (22), Movie (19), Dream (15), Treasure (15), Memory (13), Evocative (12), Filming Site (12), Story (11), Theme (11), Model (10), <i>Manyoshu</i> (Ancient Song Book) (10), Treasure (10), Folk Story (10)
	Sense of Belonging (389)	Homeland ( <i>Furusato</i> ) (118), Culture (84), World (40), Japan (39), Home Town (33), Japanese (23), Nostalgia (16), Origin (14), Japan's Most Famous (11), Proud of (11)
	Life (38)	Life (26), Born (12)
Culture /History	History (1265)	Past (245), History (182), Since Then (111), Generation (185), Traditional (59), Ancestor (51), Inheritance (45), Folklore (36), Middle Ages (35), Ancient (28), Inheritance Site (26), Historic Site (24), Showa Period (24), Cultural Inheritance (22), Old Road (18), Vestige (16), Castle Remains (15), Modern (15), 300 Years (14), Warring State Period (13), Old (12), Traditional Culture (12), Thousands of Years (12), Historical Culture (12), <i>Kamakura</i> Period (12), <i>Heian</i> Period (11), <i>Jomon</i> Period (10), <i>Showa</i> 30's (10), Period of Domain State (10)
	Culture (46)	Picture Letter (13), Custom (12), Traditional Art (11), Taste (10)
	Inheritance (63)	Fortune (15), World Heritage (14), Important Cultural Heritage (12), Ancient Tomb (12), Remains (10)
	Religious (185)	Shrine (45), Temple (31), Belief (27), Village Shrine (24), Grave Yard (15), Local God (13), Spiritual Site (11), Precinct (11), Invocation (11)
	Place names (69)	Local Name (31), Name (24), Giving Name (14)
	Village / Settlement (2523)	Home Village ( <i>Sato</i> ) (568), Local (501), Settlement (397), Village (135), Mountain Town (89), Village Houses (81), Site of Streets (69), Stone Wall (48), Houses (48), Agricultural Village (45), Countryside (35), Small Settlement (31), Mountain Village (31), Homestead Woodland (29), Old Folk House (26), Roof (24), Row of Houses (23), Thatched Houses (21), Thatches (20), Home Village Site ( <i>Satochi</i> ) (19), Marginal Village (29), Boat (21), Inn Town (18), Livelihood Culture (16), Small Village (16), Farming and Mountain Villages (15), Homestead (15), Storehouse (15), Station (15), White Walls (14), Village People (13), Old Home Towns (12), Family of Pedigree (11), Residential Building (11), Waterwheel (11), Town (11), Castle Town (10), Entire Village (10), Human Dwellings (10), Post Station (10)
Future /Time	Future (157)	Future (37), Succeeding Generations (27), Modern Times (25), After Then (23), Future Generation (12), Descendent (12), Continuation (11), Successor (10)
	Time (89)	Time (41), Year (24), This Year (24)
Tourism, /Recreation	Tourism (499)	Hot Spring Site (75), Tourists (53), Symbol (51), Beauty Spot (37), Photograph (29), Tourist Site (25), Highlight (20), Tourism (20), Recreation Trail (19), Mountain Trail (17), Village for Firefly (15), Aesthetic Landscape (15), Upland (15), Museum (13), Viewing Platform (12), Course (11), Exhibition (11), Guide Sign (11), Guest House (10), Spot (10), Hot Spring Facilities (10), Hot Water (10), Forest Road (10)
	Experience /Recreation (412)	Activity (133), Experience (49), Observation (30), Volunteer (26), Tree Planting (24), Biotope (19), Environmental Education (16), Environmental Learning (15), Nature Observation (13), Learning (12), Camp Site (12), Fishing (11), Field Study (11), Agricultural Experience (11), Camping (10), Participant (10), Education (10)
	Event/ Contest (242)	100 Sato Contest (38), Village Scenery Contest (38), Festival (33), Important <i>Satochi Satoyama</i> Selected Site (31), Traditional Event (29), 100 Village Scenery (28), Event (28), Select 100 (17)
	Research (35)	Examination (24), Research (11)
Resource management/ Preservation	Social Circle (357)	Interaction (74), Cooperation (60), Participation (48), Relaxation (41), Together (29), Formation (24), Working Together (21), Coordination (16), Bond (12), Town Planning (12), Regional Planning (10), Regional Revitalization (10)
	Resource Management (289)	Management (62), Rehabilitation (49), Hands On (45), Open Burning (26), Mowing (18), Cleaning (17), Thinning (14), Work (14), Tree Trimming (13), Maintenance (11), Renovation (10), Burning (10)
	People (505)	People (293), Children (149), Local People (24), Adults (15), Local Farmers (12), Old People (12)
	Preservation (154)	Reservation (55), Preservation (45), Preservation Activity (35), Protected Activity (19)
	Revitalization (81)	Vitalization (39), Creating <i>Sato</i> (22), Reconstruction (10), Spread Information (10)
Organization (264)	Effort (40), Coexistence (30), Organization (22), Establishment (22), Development (20), Project (14), Continuous (14), Inauguration (13),	

Large Groups	Small Groups	Individual words used more than 10 times in each group ( ) ; number of appearances
		Propelling (13), Excises (13), Secure (12), Contribution (11), Support (10), Accomplishment (10), Planning (10), Sharing (10)
	Exploitation (30)	Exploitation (19), Cultivation (11)
	Resource utilization (105)	Charcoal Burning (33), Resource (24), Charcoal (13), Firewood (12), Extraction (12), Sericulture (11)
	Application (68)	Application (68)
Agricultural activities	Agricultural activity (572)	Agriculture (102), Plow Land (82), Cultivation (63), Production (47), Farmland (42), Area of Production (34), Harvesting (34), Cultivation (31), Sales (21), Indigenous Product (17), Farming (17), Regular Vocation (14), Agricultural Production (13), Pesticide (12), Ranch (12), Cultivated Field (11), Crop (10), Non-Pesticide (10)
	Rice production (656)	Paddy Field (323), Reservoir (42), Channel (41), Rice Planting (39), Pastoral (36), Rice Cropping (34), Rice Ear (31), Growing Rice (21), Fallow Field (20), Pastoral Region (19), Paths by the Paddies (15), Harvesting Rice (15), Dike by the Paddies (10), Paddy Field Region (10)
	Agricultural fields (185)	Agricultural Field (119), Terraced Fields (51), Fruit Farm (15)
Food/ Resources	Food in general (67)	Food (18), Cooking Ingredient (16), Food Culture (13), Seaweed (10), Green Horseradish (10)
	Vegetables (61)	Vegetables (50), Sweet Potato (11)
	Fruits (90)	Apple (25), Orange (17), Japanese Persimmon (16), Sweet Chestnut (12), Fruits Trees (10), Grapes (10)
	Grains (141)	Rice (54), Soba Noodle Crop (51), Tea Tree (36), <i>Koshihikari</i> (Brand of Rice) (9), Soy (8), Straw (7), Wheat (6), Productiveness of Grain (6)
	Benefits (28)	Benefit (16), Provision (12)
Nature/ Geographical features	Virgin nature (64)	Large Nature (27), Native (19), Untouched (18)
	Geographical features (1351)	Nature (650), Ground (183), Environment (119), Earth (18), Slope (49), Hill (39), Valley (31), Rocky Summit (30), Stone (26), Hillside (22), Canyon (21), Plane Land (21), Sloping Site (19), Basin (18), Hillside Land (18), Summit (16), Rock (16), Perpendicular Slope (16), Plateau (13), Bank (13), Valley Site (13)
	Oceans (364)	Ocean (154), Island (128), Coast (38), Coast Line (25), Set of Islands (19)
	Mountains (815)	Mountain (344), Foot of Mountain (122), Mountain Range (112), Between Mountains (78), Mountain Forest (33), Top of Mountain (25), Mountain Ravines (24), Mountain Chain (20), Skirts of Mountain (18), Filled Mountain (10), Between Mountains (10)
	Water (872)	Water (204), River (183), Fresh Stream (81), Stream (64), Pond (50), Water Fall (35), Headstream (34), River (32), Spring (31), Headwaters (30), Waterfront (29), Lake (26), Branch Stream (24), Downstream (19), Freshwater (17), Bog (13)
	Forests (300)	Green (134), Forest (131), Primary Forest (35)
	Woodlands (239)	Secondary Woodland (80), Trees (38), Woodland (38), Plantation (33), Bamboo Forest (26), Pine Forest (14), Natural Forest (10)
	Trees (135)	Giant Tree (26), Tree (26), Berry (21), Large Tree (18), Windbreak Forest (16), Broadleaf Tree (16), Old Tree (12)
	Grasslands (158)	Grassland (63), Grass (32), Wetland (25), Highland (25), Wilderness (13)
	Parks (93)	Park (35), Planting Ground (29), Row of Cherry Blossom Trees (19), Natural Park (10)
Living organisms	Living Organisms (509)	Animals and Plants (229), Flower (141), Habitat (32), In Clumps (27), Mountain Grasses (21), Vegetation (14), Wild Animals (14), High Mountain Vegetation (11), Grass and Trees (10), Flowers (10)
	Individual species names (1974)	Tree Species (478), Bacteria Species (28), Grass Species (224), Mammals (346), Birds (135), Amphibians (66), Reptiles (14), Fish (210), Insects (396), Shells (10), Extinctions (81)

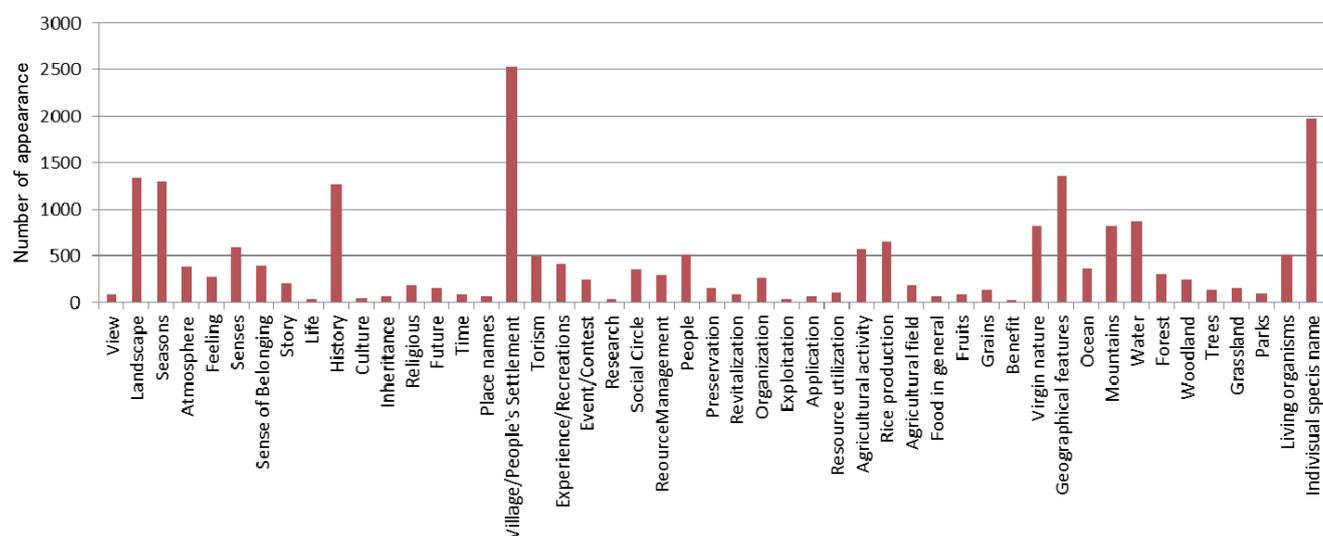


Fig. 1 Small groups of words that appeared more than 10 times.

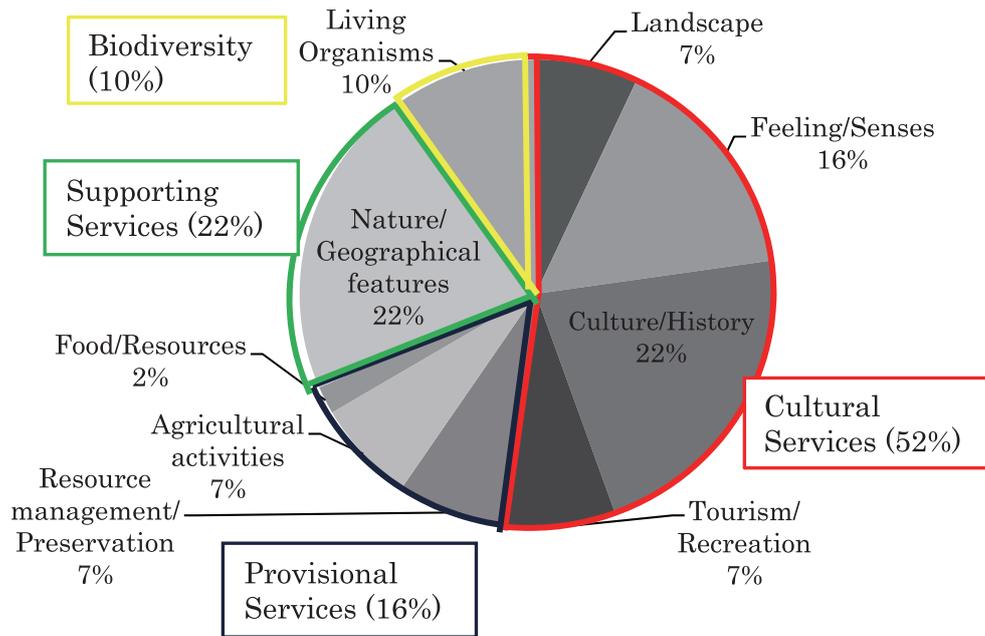


Fig. 2 Ratio of larger groups of words that appeared more than 10 times.

Table 3 Correlations between landscape types and cultural services.

		<i>Landscape Type (divided by cluster analysis, Iwata et al., 2010)</i>					
		<i>Forest</i>	<i>Mixed</i>	<i>Paddy</i>	<i>Other Agricultural</i>	<i>Urban &amp; Suburban</i>	<i>Ocean</i>
<i>Cultural services categorized by words appearing more than 10 time</i>	<i>Landscape</i>	Landscape, Views		Landscape	Landscape		
	<i>Feeling/Senses</i>	Sense, Sense of Belonging, Feelings, Seasons, Atmosphere	Life, Feelings	Sense of Belonging, Seasons	Feelings		
	<i>Culture/History</i>	Heritage, Religion, Place Name, Culture, History				History	
	<i>Tourism/Recreation</i>	Event/Contest Tourism	Event/Contest	Tourisms, Circle of People	Academic, Research	Social Circle, Experience, Recreation	
	<i>Agriculture</i>	Rice Production	Satoyama Activities	Rice Production			Fishery

3.2 Questionnaire survey for people not involved in Satoyama movements

3.2.1 Images of “rural life”

The first question was “Do you like rural areas?” The ratio of people who answered “Yes” was 27.9 %, and “Yes” and “Yes, mostly” accounted more than 80% of all responses (Table 4). The ratio of males who answered “Yes” and “Yes, mostly” was 84.0% and that of females was 75.3%. There was no significant difference among age classes. The ratio who answered “Yes” and “Yes, mostly” was higher for individuals whose birth places and present address were in agricultural villages/seashore villages than those in urban/suburban areas.

The second question was “What do rural areas call most to your mind? Choose four among: beautiful, nostalgic, lonesome, outmoded, joyful, precious, tasty, safe, dangerous, inconvenient, dull, healing, to be pro-

tected, difficult, to be inherited, experiencing seasons, traditional, future, harmonious” The top five choices were “nostalgic,” “beautiful,” “inconvenient,” “healing” and “experiencing seasons” (Table 5). More than half of the individuals answered “nostalgic” among their four choices. Males tended to answer “beautiful” as their second choice, while females answered “inconvenient.” In all age classes “nostalgic” was the top answer, and the younger generation listed “beautiful,” “outmoded” and “traditional,” while the older generation listed “experiencing seasons.” Individuals who answered “No” or “No, mostly” to the first question tended to call to mind the negative images of “inconvenient,” “outmoded,” “lonesome” and “dull.” The most frequent answers to the question, “How do you want to be involved with rural areas?” were “have contact with nature,” “be refreshed” and “go sightseeing,” but more than 10% of the individuals

**Table 4** Preference for rural life, and gender and age of individuals who answered the questionnaires.

		Sum	Do you like rural areas?				
			Yes	Yes, mostly	No, mostly	No	Not answered
Total		8200	27.9	51.7	17.2	3.1	0.0
gender	male	4100	32.1	51.9	13.4	2.5	0.0
	female	4100	23.7	51.6	21.0	3.7	0.0
age	10-19	833	31.6	48.5	16.9	3.0	0.0
	20-29	1633	31.4	50.1	15.9	2.6	0.0
	30-39	1634	26.9	52.0	17.6	3.5	0.0
	40-49	1634	26.0	53.6	17.2	3.2	0.0
	50-59	1633	25.2	51.9	19.4	3.5	0.0
	60-79	833	28.3	53.7	15.2	2.8	0.0
gender x age	male, 10-19	416	31.7	50.0	14.9	3.4	0.0
	male, 20-29	817	31.6	49.8	16.4	2.2	0.0
	male, 30-39	817	30.4	52.4	13.5	3.8	0.0
	male, 40-49	817	33.0	52.6	12.5	1.8	0.0
	male, 50-59	816	32.7	52.6	12.0	2.7	0.0
	male, 60-79	417	34.3	54.0	10.8	1.0	0.0
	female, 10-19	417	31.4	47.0	18.9	2.6	0.0
	female, 20-29	816	31.3	50.4	15.3	3.1	0.0
	female, 30-39	817	23.5	51.5	21.8	3.2	0.0
	female, 40-49	817	19.0	54.6	21.9	4.5	0.0
	female, 50-59	817	17.7	51.3	26.7	4.3	0.0
	female, 60-79	416	22.4	53.4	19.7	4.6	0.0

**Table 5** Image of rural life, and gender and age of individuals who answered the questionnaires.

		Sum	beautiful	nostalgic	lonesome	outmoded	joyful	precious	tasty	safe	dangerous	inconvenient	
Total		8200	17.5	28.7	2.1	5.0	0.8	2.9	1.7	1.9	0.1	12.0	
gender	male	4100	21.3	28.6	2.2	5.4	1.2	2.8	1.5	1.9	0.2	9.2	
	female	4100	13.8	28.8	2.0	4.5	0.4	3.0	1.9	1.8	0.1	14.8	
age	10s	833	23.8	27.0	1.9	7.9	1.1	2.3	2.3	1.8	0.1	11.0	
	20s	1633	20.8	30.0	1.8	5.8	1.0	2.9	1.9	1.7	0.1	10.8	
	30s	1634	16.8	29.9	2.0	5.9	1.0	2.5	1.7	2.5	0.1	11.6	
	40s	1634	16.2	27.0	2.0	4.3	0.9	2.9	2.2	1.6	0.1	13.6	
	50s	1633	15.8	28.5	2.8	3.6	0.6	3.6	1.2	1.9	0.2	13.0	
	60s,70s	833	12.5	29.7	1.6	2.4	0.6	3.0	0.6	1.6	0.1	11.2	
			Sum	dull	healing	to be protected	difficult	to be inherited	experiencing seasons	traditional	future	harmonious	others
	Total		8200	0.8	9.0	2.0	0.3	1.2	8.4	2.7	0.1	0.3	2.5
gender	male	4100	0.8	8.4	2.0	0.3	1.1	7.1	2.9	0.1	0.3	2.7	
	female	4100	0.8	9.5	2.1	0.3	1.4	9.6	2.5	0.0	0.3	2.3	
age	10s	833	1.2	7.2	1.9	0.4	0.7	3.6	3.4	0.0	0.5	1.9	
	20s	1633	1.0	9.4	1.5	0.2	1.0	5.3	2.9	0.1	0.4	1.5	
	30s	1634	0.7	8.7	1.9	0.2	1.8	7.0	3.2	0.1	0.2	2.2	
	40s	1634	0.7	10.2	3.1	0.4	1.0	9.1	2.6	0.0	0.1	2.0	
	50s	1633	0.5	8.5	1.8	0.4	1.4	11.0	2.1	0.1	0.4	2.7	
	60s,70s	833	0.6	9.1	1.9	0.1	1.3	15.5	2.0	0.1	0.2	5.9	

answered “no need to be involved.” Males answered, “settle in the future” and “work if a job is available” more frequently than females did. Wherever they lived, the most and the second most frequent answers were “have contact with nature” and “be refreshed,” but those who lived in agricultural villages and seashore villages answered more frequently “bring up children” and “settle now.” More than 40% of individuals who answered “Yes” or “Yes, mostly” to the first question included “settle in the future” in their answer,” while about 75% of those who answered “No” or “No, mostly” stated “no need to be involved.”

To those who answered the previous question with “settle now” or “settle in the future,” we asked “What is the main factor deterring you from settling in a rural area?” The most frequent answer for males was “unable to resign my contemporary job,” and for females, “inconvenient for shopping.” It is notable that individuals over 60 years in age answered most frequently “anxious about medical care.”

### 3.2.2 Double residency in urban and countryside areas

The next question was “Are you interested in having a second house in a rural area to spend weekends and holidays?” Those who answered “very interested” (5.3%) and “interested” (21.6%) accounted for 26.9%, while those who answered “not interested” accounted for 43.4%. More than half of the females answered “not interested,” and the younger generations tended to answer “not interested.” Among the present rural address category, those who lived in seashore villages showed the highest ratio of “very interested” and “interested” (together 33.6%). Those who answered “Yes” to the question “Do you like rural areas?” tended to answer “very interested” and “interested” (48.1% combined) more than “not interested” (24.5%). As for those who answered “Yes, mostly,” however, the ratio of the answers “very interested” and “interested” was smaller than that of “not interested.” More than 90% of individuals who answered “No” to the question “Do you like

rural areas?" answered "not interested." The higher classes of household income showed a weak correlation of the higher ratio of the answers "very interested" and "interested."

Those who answered "very interested" and "interested" to the previous question were asked, "How much would you be willing to pay for a second house in a rural area?" The answers were divided into two: "less than ¥20,000" and "more than ¥20,000." More than 90% of the answers were "less than ¥50,000." There was no significant difference between males and females. The younger generation was willing to pay a higher price: half of the teenagers answered "more than ¥30,000." The higher classes of household income were willing to pay a higher price, but the answer "more than ¥30,000" accounted for only one third even of the class with "over ¥10 million income."

Those who did not answer "not interested" and "already have" to the previous question were asked, "How far can you allow the second house to be from your residence?" More than 40% of the answers were "less than one hour by car" or "less than three hours by public transport," and only few answered "more than 3 hours." At the same time, they were asked, "How often do you want to visit your second house?" More than 70% answered at least every month: "every week" (12.5%), "every other week" (23.7%), "every month" (36.3%). Men and the older age classes tended to desire more frequent visits, and those who were "very interested" in having a second house answered "every week" (33.3%) or "every other week" (62.1%).

The next question was, "If the government paid you some additional income (a subsidy), would you think more seriously about settling in a rural area?" More than 40% of the answers were "Yes, very much," "Yes" or "More or less." Almost half of the individuals answered, "Cannot say either yes nor no." Males tended to answer more positively than females did, and there was no correlation with age classes. As for those who were "very interested" in having a second house, the answer "Yes, very much" exceeded 40% and more than 80% answered positively, including "Yes, very much," "Yes" or "More or less." There was no correlation with household income nor age class. To the question "How much would you expect as additional income (a subsidy) from the government?" the answers were divided into two: "less than ¥50,000" and "more than ¥50,000." More than a quarter answered, "more than ¥200,000." There was no difference between males and females, but more than 60% of the individuals belonging to the age classes of "40-49 yrs old" and "50-59 yrs old" expected "more than ¥100,000." The higher classes of household income tended to expect more money, but the difference was not large.

To the question, "If very cheap or free accommodation were provided, would you think more seriously about settling in a rural area?" 49.6 % of individuals answered "Yes, very much," "Yes" or "More or less." This ratio was slightly higher than that to the previous

question in the case of providing a subsidy (42.9%). There was no difference between males and females, but the younger generations tended to answer more positively. As for those who were "very interested" in having a second house, the answer "Yes, very much" exceeded 40% and almost 90% answered positively including "Yes, very much," "Yes" or "More or less." There was almost no difference among household income classes.

### 3.2.3 "Environment/Organism Brand" Products

The next series of questionnaires was on "environment/organism brand products. Positive answers to the question, "Do you know about "environment/organism brand" products?" accounted for 20.9%. There was no difference between males and females. As for age classes, the "60-69 yrs old" class showed the highest ratio (30.6%) and those "20-29 yrs old" showed the lowest (17.1%) rates of positive responses. There was great difference in recognition among educational levels: the ratio of those who answered "Yes" was highest among those who had majored in environmental issues (150 individuals) (42.7%), and second among those who did not major in it but had learnt about environmental issues (2050 individuals) (31.9%). The ratio of "Yes" responses was lowest among those who had not learnt about environmental issues (6,000 individuals; 16.6%). The next question was, "What values do you expect from "environment/organism brand" products?" The answers were: "Desirable for the environment" (67.7%), "Safe for my family's health" (51.0 %), and "Conserving endangered organisms" (36.3%). Among age classes, the older generation tended to answer more frequently "Desirable for the environment," while the younger generations answered more frequently "Safe for my family's health." Those who knew about "environment/organism-brand" products gave more positive answers, with an especially greater difference found among those answering positively "Safe for my family's health." As an answer to the question, "How much would you be willing to pay as a premium for "environment/organism-brand" products?" the ratio saying "not willing to pay extra money" was about 30%. Many individuals indicated they would pay extra money, but fewer would pay a "greater than 20% premium." However, those who answered, "if it is valuable, I will buy it regardless of price" accounted for 14.1%.

## 4. Discussion

The results from the first dataset, "The Top 100 Japanese Rural Landscapes," showed that Japanese rural landscapes, known as "*satoyama*," have a great cultural value related to tradition and history. Many people feel a sense of "homeland" or belonging concerning paddy fields, villages and people's old settlements. At the same time, villages surrounded by nature give them a sense of seasons, time and the presence of other living organisms. These are services that the urban landscape cannot offer.

The results from the second dataset, "questionnaires

to people who are not particularly involved in *satoyama* movements,” also demonstrated the image of the rural landscape as having nature, mountains, rivers, forests, the homeland and a place for relaxation. Both German and Japanese groups place value on secondary forests as “the homeland” (Kohsaka & Handoh, 2006). At the same time, the survey revealed that 10% of people feel that they would like to live in rural areas in the future. This becomes clearer by looking at the reasons they cannot live there. In the majority of cases where people feel unable to live there, they are hindered by jobs, money and other practicalities such as access to shopping facilities or doctors. Most people living in urban areas do not think of trying agriculture unless their family is doing it, so people cannot connect to the idea of themselves working in rural areas. Not knowing anybody in rural areas also makes them hesitant to move there. However, the potential remains that people would like to make such a move were these factors overcome.

As for “environment/organism-brand” products, 70% of individuals considered the additional value of “environment/organism-brand” products to be ca. 10-20%, it is noteworthy that those who answered “if it is valuable, I will buy it regardless of price” accounted for 14.1%. As many people are not interested in living in rural areas, paying extra money for “environment/organism brands” among urban people may be considered PES to promote monetary contribution to the *satoyama*.

Therefore, the conclusions from this study to create a new “commons” are as follows:

- 1) Beautiful landscapes that provide a sense of nature, history, culture, feeling, traditionality or uniqueness are required in order to encourage people to visit rural areas.
- 2) A sense of belonging, seasons, events, tourism, a circle of people, *satoyama* activities, and social interaction are required in order to motivate people to get involved in rural areas.
- 3) Jobs such as “attractive agriculture,” the renewable energy sector or “telecommuting” to offices using the Internet, along with social interaction are required if we want people to live there or to consider double residency in urban and rural areas.
- 4) Paying extra-money for “environment/organism-brands” among urban people can be thought as PES to promote monetary contribution to the *satoyama*.

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