

Satoyama and Satoumi of Ishikawa

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Table of Contents

<i>Satoyama – Satoumi</i>	02
Ishikawa	04
Food and Livelihood	
“Half-farming, Half-fishing”, Nanao City.....	07
Ōhama Daizu Soybean, Suzu City.....	10
Biodiversity	
Natural Cultivation and Ecosystem, Hakui City.....	14
Team Maruyama, Wajima City.....	17
Traditional Knowledge	
Charcoal Forests, Suzu city.....	22
Kaga Vegetables, Kanazawa City.....	25
Culture and Society	
Yama-Warai Festival, Hakusan City.....	30
Shunran-no-Sato Community, Noto Town.....	34
Landscape and Natural Resource Management	
Shiroyone Senmaida Terraced Paddies, Wajima City.....	39
Katano-Kamoike Pond, Kaga City.....	44
Life in Harmony with Nature	48



Satoyama – Satoumi

As dawn breaks, excitement is waiting to burst forth in a lively display in the *satoyama* and *satoumi* of Ishikawa Prefecture, located on the west coast of central Japan. Birds springing out of their nests in the mountains flock into the villages announcing the arrival of a brand new day, cheered on by the sight of forests of slender Japanese cedar trees swaying merrily in the wind. Awakened insects and animals join in the chorus, while the aromas of wood charcoals and freshly steamed rice spill forth from the chimneys. But ahead of even the early birds are eager farmers, who are already in the fields welcoming the fruits of their labour. The shores are not far from the fields, and here fishing boats are racing back to the coast in triumphant spirits, with proud fishers emptying out barrels of gems marking their victory in the previous night's struggles at sea. The break of day is a time to celebrate and give thanks for the gifts from Mother Nature, ushering — with tranquillity and excitement — another start to nature's daily cycle of blessings. These are just some of the common glimpses of everyday rustic life in the *satoyama* and *satoumi* of Ishikawa, where people live in harmony with nature and bask in its generous bounty.

Satoyama literally means “village mountains” in Japanese, as “sato” means village and “yama” means mountain. *Satoyama* is often defined as “a mosaic of different ecosystem types — secondary forests, farm lands, irrigation ponds, and grasslands — along with human settlements, which has been managed to produce bundles of ecosystem services for human well-being”. In other words, *satoyama* is where natural areas and human settlements coexist in harmony, harnessing rich plant diversity and animal life. *Satoyama* landscapes are found mostly in rural and peri-urban areas in Japan, and are formed and developed through prolonged interaction between humans and their surrounding ecosystems. Today, 40 percent of Japan and 60 to 70 percent of prefectural land in Ishikawa is considered to be *satoyama*, which has been conserved through sustainable use of natural resources by local inhabitants drawing on many generations of ancestral wisdom.

Satoumi, literally means “village sea”, and often broadly refers to “the coastal areas where people live”, as “sato” means village and “umi” means the sea. *Satoumi* is commonly defined as “a coastal area in which there is a harmonious coexistence of nature and human-beings and where biological productivity and biodiversity has increased through human interaction”. In terms of spatial definition, *satoumi* refers to intermediary areas, such as tidal flats, sea grass beds, shores and beaches, which connect sea and land; in other words the intermediary domain between human and nature. Thus, *satoumi* is also often understood as the coastal zone, which includes coastal land and waters. Like *satoyama*, the *satoumi* concept also stresses the crucial role of human involvement in the conservation of the natural environment and maintaining biological productivity of ecosystems.

Both *satoyama* and *satoumi* are more than just beautiful rural landscapes; they provide food and economic activities that support livelihoods, as well as cultural and ecosystem services for its inhabitants.

Together, *satoyama* and *satoumi* form a mosaic of socio-ecological production landscapes and seascapes, constituting managed systems that represent an indigenous prototype of coexistence between humans and nature. *Satoyama* and *satoumi* are connected by the physical circulation of nutrients from the forests to the rivers and into the sea, and a steady, seamless connection is vital for the maintaining healthy natural ecosystems. This “forest-river-sea connectedness” in *satoyama* and *satoumi* forms an integrated ecosystem, and together *satoyama-satoumi* landscapes provide three key ecosystem services: *provisioning services* of food and natural material resources supplied by *satoyama-satoumi* to human communities; *regulating services* such as climate control, water quality control, wildlife habitat regulation, disaster control and coastal water environments maintenance; and *cultural services* which form the very foundation of Japanese society and traditional landscape practices. Hence, *satoyama-satoumi* is the Japanese concept for long-standing traditions associated with land and, more recently, coastal management practices which have allowed sustainable use of the resources from the past to present, and is thus a historical model for environmental stewardship and resource management that contributes to human well-being.

However, *satoyama-satoumi* in Japan have been rapidly declining in the last fifty years due to various factors brought about by a convergence of endemic and global trends, including increased rural-urban migration, land-use conversion and the abandonment of traditional agricultural cultivation. Rapid urbanization and rural depopulation have resulted in the conversion of rural land for industrial, residential or recreational use, as there is increasing abandonment of agricultural cultivation due to old age and fewer rural inhabitants available to manage *satoyama* landscapes. The availability of cheap timber imports from overseas is also forcing out local timber production, which subsequently led to further neglect of the forests and abandonment of *satoyama* management, causing disruptions to key ecosystems including adequate water supply, flood and soil erosion prevention.

Satoumi landscapes have also undergone similar transformations, including loss of coastal area available for recreational and traditional fishing activities, as well as increased pollution, which has affected marine fisheries. *The Japan Biodiversity Outlook* released by the Ministry of the Environment of Japan reported on a significant drop in tidal flat areas, the loss of 40 percent of sandy beaches and more than 50 percent of Japanese natural coastlines between 1945 and 1995. With one of the most aged societies in the world, Japan's rural communities are struggling with the acute problem of underuse and under-management of ecosystems. In 2011, the farming population in Japan was 2.6 million people, or 4.8 percent of total population, but 74 percent of these individuals are over 60 years old. If the trend of underuse and under-management continues, vital services provided by *satoyama-satoumi* will be adversely affected.

Unfortunately, Ishikawa Prefecture is no exception in this nationwide wave of urbanization, aging and depopulation. Its population now stands at 1.16 million people, 23.9 percent of whom are elderly (65 years and above), a proportion that is projected to continually rise to 34.5 percent by 2035. Its primary industry workforce was 3.1 percent in 2010, but it is a senior workforce, with individuals averaging 62.2 years of age. With the dwindling number of farmers, foresters, fishermen and traditional craftsmen due to aging and depopulation, Ishikawa, like many other prefectures in Japan, is trying to overcome the challenge of vanishing rural landscapes, ecosystems, traditional culture and arts.

Yet in face of this adversity, the people of Ishikawa are coming together to preserve their rustic lifestyles and cultures in the hope to pass on their traditional knowledge, social values and love for nature to future generations. For the people of Ishikawa, *satoyama* and *satoumi* are not only landscapes with nostalgic beauty, but also a way of life, and the very roots of Japanese identity. *Satoyama* and *satoumi* provide a bounty of food and livelihoods for people. They also conserve the biodiversity of the ecosystems, foster traditional knowledge adapted to local conditions, preserve the natural landscape, ensure effective use of resources, and nurture spirituality and flourishing cultures. In the following chapters, we will take you on a journey to meet some of these locals of Ishikawa from all walks of life, who share their stories, which contain a common thread — their deep love for the *satoyama* and *satoumi* of Ishikawa.

Evonne Yiu (UNU-ISP)



Mount Hakusan

© Ishikawa Prefecture Tourism League



Kanazawa Castle

Ishikawa

Geography

With a population of 1.16 million (as of March 2012), Ishikawa Prefecture is located in the centre of the Hokuriku region in west-central Japan. It faces the Sea of Japan to the north along Noto Peninsula, while it shares borders with Toyama Prefecture and Gifu Prefecture to the east, and Fukui Prefecture to the south. Geographically, the long and narrow prefecture stretches from southwest to northeast, measuring 100.9 kilometres from east to west, 198.4 kilometres from north to south, and boasting a coast stretching for 581 kilometres. It is comprised of a total of 19 municipalities, of 11 cities and 8 towns, including Kanazawa City. With Japan's largest peninsula – Noto Peninsula – facing the Sea of Japan to the north, and the high altitude mountainous area of Mount Hakusan (highest peak 2,702 metres) stretching to its south, Ishikawa Prefecture is home to a diversified natural environment spanning alpine and coastal regions.

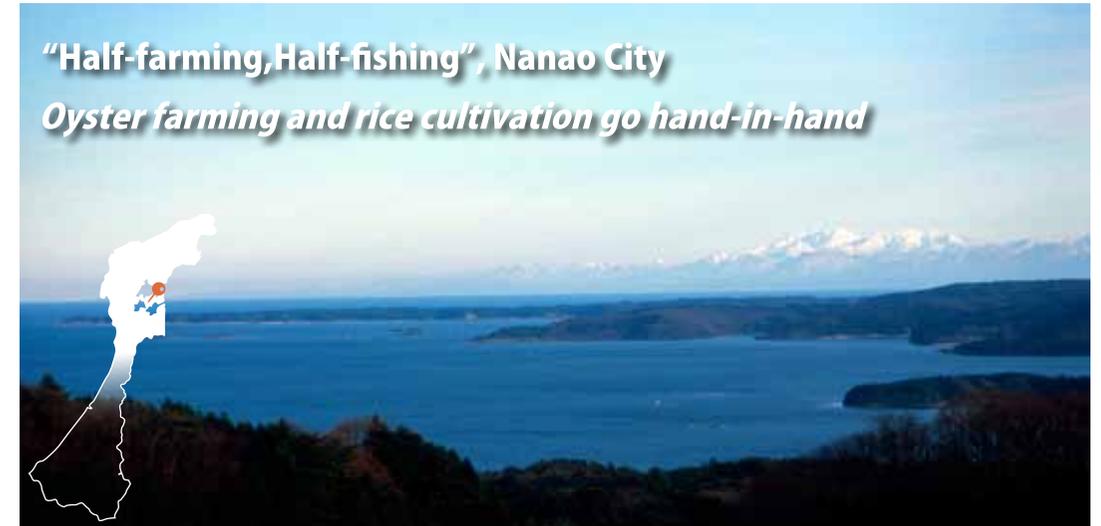
Climate

With a climate typical to areas along the Sea of Japan, Ishikawa sees heavy snows in winter. Due to its long and narrow landscape including high-altitude mountainous area, climate conditions differ greatly among the regions within the prefecture. For example, the average snowfall is below 50 centimetres in the coastal areas, while in the Mount Hakusan area, up to 400 centimetres can be recorded. Ishikawa is also a rainy region, and its capital city, Kanazawa, is one of the ten rainiest cities in Japan, registering to up to 24,702 millimetres of annual rainfall (from 1971 to 2000). Surrounded on three sides by the seas, and with the Tsushima Warm Current passing offshore, Ishikawa is warmer relative to other regions located at similar latitudes. The topography of the Noto region is characterized by low mountains and hilly areas, whereas the Kaga region has a more complex geographical landscape of high mountains and long coasts.

History

Situated along the Sea of Japan, Ishikawa Prefecture has been a major gateway for maritime trade to and from the Asian continent since ancient times. The prefecture prospered under the rule of the Maeda Clan of the Kaga Domain during the Edo period (1603-1868). The Maeda Clan, which was often referred to as *Kaga Hyakumangoku* (*Hyakumangoku* means "a million koku of rice", where *koku* refers to the amount of rice that could feed one person in a year), had no military ambitions to take over the country during an era of endemic warfare and power struggles amongst domains and clans, then under the rule of the Tokugawa Shogunate. Instead, the clan concentrated on implementing policies to make Kanazawa a cultural hub of arts and traditional crafts, by building workshops for famous and highly-skilled artisans they had brought from Kyoto and Edo (Edo is the ancient province name for Tokyo). This promotion of culture was a way for the Kaga Domain to show the ruling Shogunate in Edo that it had no desire or interest in rebelling against the government. Thus, Ishikawa prospered and became a wealthy and cultured region, with a vibrant variety of arts and crafts (such as Kanazawa gold leaf art, Kanazawa lacquerware, Kaga Yuzen silk dyeing, and Kutaniyaki ceramics), and also providing the tools and products needed for tea ceremony and Noh drama, which flourish even today. Ten of these traditional arts and crafts have been designated National Traditional Arts and Crafts, the highest number for any prefecture after Kyoto. Today, Ishikawa Prefecture continues to attract attention for its prominence in Hokuriku region along the Sea of Japan, as a prefecture with abundant nature, rich traditions and history, exquisite arts and culture, as well as a vibrant and highly skilled population active in the fields of industry, science and technology.

Food and Livelihood



Coastal communities in Noto Island, located in Nanao Bay of Noto Peninsula, have been endowed with abundant resources from both the terrestrial and coastal areas — its *satoyama* and *satoumi*, respectively. Oysters have been grown in the middle of Uchiura in Nanao Bay, the eastern part of Noto Peninsula, where the seawater is tranquil. It is said that oyster farming in Nanao Bay started during the Taishou period (1912-1926). Today, oyster farming has become the second most important industry, following rice cultivation in West Nanao Bay.

In 2011, the oysters produced in Noto Peninsula weighed around 2,266 tonnes, giving it the highest ranking on Japan's western coast. Oyster farming in Nanao City contributed to around 88 percent of the total oyster production in Ishikawa Prefecture. The remaining 12 percent of the oysters are produced in Anamizu Town, to the north of Nanao City. Nanao City is situated at the center of Noto Peninsula and was the ancient capital of Noto Province. The name "Nanao" literally means "seven tails", which is said to derive from the seven visible mountain ridges from Joyama, the site of the city's historical castle ruins. The waters of Nanao Bay are surrounded by the two administrative areas of Nanao City and Anamizu Town. The Nanao Bay is divided into three water bodies, the North Bay, West Bay and South Bay. Nanao Bay is one of the rare, large-scale eelgrass beds that houses many endangered species in the Sea of Japan. The majority of Nanao Bay is also part of the Noto Peninsula National Park, and was selected as one of the "500 important wetlands in Japan".

The tides of Nanao Bay are very gentle on most days, as the bay is surrounded by forested mountains that block strong winds from the ocean. For an aquaculture site to be productive, it must have high quality water, rich quantities of nutrients, and appropriate and consistent levels of salinity and water temperature. Coastal aquaculture is heavily dependent on environmental conservation in upstream areas of rivers and streams that flow into the sea. The precipitation in the mountain forest flows underground and downstream together with fallen leaves piled up at the forest surface and muck soil. In this process, abundant nutrients from the forest dissolve into the stream water, which then flows slowly from the rivers into the ocean. In the ocean, these nutrients are utilized by phytoplankton, seaweed and other forms of life and are passed on to zooplankton, fish, and other ocean creatures across the food chain. The fish are then caught by fishermen, eaten by land animals, or swim upstream to spawn. Through these linkages between territorial and coastal ecosystems, the substances return to the land once again. This perfect balance of forest, river, *sato* (human settlements) and sea creates a healthy circulation of materials.

For generations, the Sakashita family has lived with the *satoyama* and *satoumi* in Noto Island and practiced "half-farming and half-fishing" for a living. Members of the Sakashita family are now the only oyster farmers on Noto Island, which has an area of 46.78 square kilometres and is home to a total of 20 communities.



Seed oysters

Kinjou Sakashita, and his wife, Sanae, are both 60 years old, and started their oyster aquaculture activities in 1986. Their son, Susumu, is 24 years old, and helps with farm work, oyster cultivation and telephone-based rice sales, while also working part-time at a nearby convenience store. For the past twenty years, the Sakashita family has also been hiring a couple of tobacco farmers from a neighbouring village to help with the oyster harvest during the winter. Tobacco cultivation was a major cash crop on Noto Island about 20 years ago, but most tobacco farmers quit and abandoned the land following the dramatic drop in tobacco leaf prices.

Kinjou Sakashita said that since 1987, he has been purchasing seed oysters from Hiroshima Prefecture, which is the biggest production area in Japan. In Noto, seed oysters are planted on scallop shells purchased from Hokkaido Prefecture. The scallop shells acts as a surface on which the oysters grow, and are strung together and hung above the sea bottom. The oysters, which are then naturally raised in estuarine areas fed by river water from the surrounding mountains, such as the Kumaki River, which is the largest river in Nanao. In Nanao Bay, clean water running from the secondary forest empties into the bay, bringing abundant nutrients from the forest to feed the fish and farmed oysters. Consequently, oysters grow quickly and can reach maturity within a year, while oysters grown in the seawater in the other parts of Japan are harvested after two years. Sakashita said that oysters produced in Nanao Bay are acclaimed for their good taste, although they are smaller compared with those from other production areas in Japan. The oysters harvested each year total around six tonnes, with the emptied shells alone weighing five tonnes.

At the same time, Sakashita is also a farmer, currently cultivating several plots of paddy rice, covering an area of 0.6 hectares. Last autumn, Sakashita harvested around 102 bags of rice, each weighing 30 kilogrammes. Through their interactions with nature, the Sakashita family is making efforts to reduce the chemical input into their paddy fields, which would ultimately influence coastal waters. Around 15 years ago, oyster shells were crushed and then poured onto paddy fields with the initial purpose of improving the paddy field soil and for use as natural nutrients rather than chemical fertilizer. It came as a pleasant surprise to Sakashita when the rice planted in paddy field soil enriched with crushed oyster shells received rave reviews for its good flavour. Recently, a fertilizer company started to produce organic fertilizers made from oyster shells, and three other farmers from Kahoku City and Hakui City, on the southern part of Noto Peninsula, also showed interest in the oyster shell fertilizer. One of these three is a large-scale farmer, owning paddy fields covering over 30 hectares. Since the oyster shell rice has sold quickly this year, Sakashita said that they are planning to organize an Oyster Shell Rice Collaborative to increase rice production. Sakashita cheerfully noted that this rice fertilized with crushed oyster shells will be named "Oyster Shell Rice".

However like all farmers, Sakashita is at the mercy of the weather and climate change, both of which have often brought about negative and sometimes catastrophic impacts on his oyster farming. Sakashita

recalled that oyster farmers in Nanao Bay suffered heavy losses due to very hot days last summer; some farmers lost as much as 80 percent of their total annual harvest. If high temperatures persist over a long period, the young oysters will stop growing and will die with their shells opened up. Sakashita himself has already come to recognize the unusual climate changes over the past years, and last year he planted twice as many seed oysters as usual. He split all the seed oysters into two batches, and only planted half of them in the coastal waters in May. The other half of the seed oysters were first kept in the shallow coastal area that functions like a nursery port and were then transferred to the coastal waters around one month later in June. Sakashita said that most of the oysters that were planted at the earlier time in May died, and only those planted at the later stage survived the hot summer. Sakashita had taken pre-emptive action against such uncertainties, and although around half of his cultivated young oysters died, the total harvest was not altered much compared with other years. He stressed that these countermeasures against extreme temperature in oyster farming were developed based on his many years of aquaculture experience. Unfortunately, the majority of oyster farmers in this area have not found alternative methods. In particular, the oyster farmers whose families started oyster farming around 100 years ago insisted on the traditional ways of cultivation and have not been able to adapt to the changing environment, causing them to suffer great losses last summer.



Kinjou Sakashita

Last winter, the Sakashita family embarked on their latest venture with the opening of a small restaurant. Fresh oysters and homemade vegetables grown without the input of chemical fertilizers or pesticides are served in their restaurant. Sakashita mentioned that the majority of his oysters have been sold to distant markets, and some of these customers even sent him thank you letters expressing their appreciation for the quality of his oysters. However, it then occurred to him that he had never seen his customers eating the oysters. Sakashita said that since he has put in a lot of effort

to produce the highest quality oysters, he wanted to see for himself whether customers really liked his oysters. Therefore, the opening of this new restaurant provided the Sakashita family with the opportunity to communicate directly with their customers. At the restaurant, Sakashita would personally sit next to his customers, serve them charcoal fire grilled oysters and share his oyster cultivation stories while the customers enjoyed the delicious food. Sakashita said he is so happy to listen to his customers' feedbacks and compliments.

Sakashita also said that the marketing options for oysters have been drastically transformed in recent years. In the past, oyster farmers usually sold their oysters at the central markets of Nanao City or Kanazawa City. However, nowadays young oyster farmers sell the majority of their oysters directly to the customers using delivery services. His son, Susumu, has helped out a lot with the design of their packaging. Sakashita has high expectations for his son with hopes that he will inherit his oyster farm. If Susumu takes over the oyster farm, Sakashita said he could then take care of more paddy fields. In fact, Sakashita has already taken over three pieces of paddy fields from his neighbours. Pointing towards where his neighbours live, Sakashita respectfully said that although they are in their 70s and 80s, his neighbours are still practicing rice farming. He hopes that if the call ever comes, he will be ready to take over the management of his neighbours' land. The Sakashita family is indeed part of the community that has been acting as a custodian of both the coastal and terrestrial areas.

Bixia Chen (UNU-IAS OUIK)



Ōhama daizu soybean

In Noroshi area, which is located at the top of Noto Peninsula, a local variety of soybean called *ōhama daizu* was recovered around ten years ago. Soybean curd (*tofu*) from *ōhama daizu* is made using traditional methods and local seawater bittern from the nearby *enden mura* (salt-making village).

Noroshi belongs to Suzu City, which is the smallest city in Ishikawa Prefecture in terms of population. At the end of 2011, Suzu City has a population of 16,567 with 6,493 households. Having a total area of 247.2 square kilometres, Suzu City is surrounded by ocean in three directions and has a long coastline that provides residents with abundant resources from the sea and mountain forests.

Local crop varieties are significant as a source of food while also providing livelihood safety and security, since local varieties have been cultivated and well adapted to the local environment and are useful for future plant breeding. Despite the prominent significant contribution of landraces to people's food diversity and the healthy ecosystem, the local varieties that were once under cultivation have now disappeared in large numbers in Japan since World War II.

Since the 1960s, many local crop varieties have seen a sharp decrease in production area and have even become extinct due to the changing dietary habits and the national agricultural policy in Japan. Nowadays, the few remaining local varieties are usually cultivated in small areas for self-consumption. According to the Plant Genetic Resources for Food and Agriculture (PGRFA), some local varieties, which have been preserved on-farm, are in danger of going extinct in some areas due to increasing monoculture farming around the world. The declining and aging farming population in Japan exacerbates this process. Local crop varieties are suffering genetic erosion mainly due to replacement by new high yield varieties.

The *Ōhama Daizu Soybean Restoration Project* in Noroshi has not only succeeded in recovering a local variety of soybean that has almost gone extinct, but at the same time has rejuvenated the local economy. The Noroshi Roadside Station Store, which opened in 2009, was donated to the community and functions as a platform for interaction between the urban and local community. Roadside stations in Japan are public rest places built along the roads or highways to provide travellers with 24-hour services including a free parking lot, restroom and other facilities for local information exchange. The Noroshi Roadside Station Store provides a good venue for reaching out and promoting both the local tourist attractions and local specialties to visitors.

Today, soybean products from *ōhama daizu* are only made and sold at the Noroshi Roadside Station Store. The soybean production plant inside the store employs four part-time workers, who are all locals and who assist with both the production and sales. Among them, Takaaki Kobayashi, a new farmer in Noroshi, is also in charge of the online shop by putting product information on the website. Kobayashi, 39 years old, moved

to Noroshi from Nonoichi City at the southern part of Ishikawa Prefecture. Working part time at the soybean plant, he is also cultivating a total area of around 0.3 hectares of paddy fields. He said that a great yearning for the rural lifestyle motivated him to leave the urban area and move to this remote village.

Besides making traditional products such as soybean curd, *nattou* (soybeans fermented with *Bacillus subtilis*) and soybean flour, Hiroyuki Shin, Head of Noroshi Roadside Station Store and his team have also made great efforts to develop new products using *ōhama daizu* soybean. Some of these new items include donuts made from the flour mixed with residue from bean curd processing, and ice cream made from soybean milk. In order to make tasty and healthy soybean milk ice cream, Shin said that they spent around four months developing the successful product. In 2012, they made two other kinds of desserts, donuts and rice crackers mixed with soybean curd residue. According to Shin, the most popular items are croquettes, donuts and ice cream. This year, they have plans to produce soybean milk jelly under professional instruction from a Japanese confection store in Suzu City. The new jelly product is expected to be on sale from the middle of April 2013.

In addition to the highly popular *ōhama daizu* soybean products, locally-produced vegetables and handicrafts are also sold inside the Noroshi Roadside Station Store to promote local agricultural products. According to the agreement between Suzu City Municipal Office and the Noroshi community, around 30 percent of the revenue from the roadside store will be transferred to Suzu City as public finance. Due to the overwhelming boom of *ōhama daizu* over recent years, the payment to Suzu City almost tripled from around JPY 730,000 in 2009 to JPY 1,804,000 in 2011.

Numerous tourists were attracted to this remote community, in part to taste the *ōhama daizu* soybean products. During the consecutive holidays in spring and summer, an average of 3,000 people visited this small roadside store. The popularity of *ōhama daizu* soybean curd is not only evident locally, but has also been gaining a following nationwide, even ranking third at the National Roadside Store Food Contest in 2011.

While relating the history of the recovery and technological development around *ōhama daizu*, Shin mentioned that in the past, *ōhama daizu* soybean was cultivated and maintained in a small area of Suzu City. It was planted in diatomaceous earth, which consists of fossilized remains of diatoms, a type of hard-shelled algae. According to a very knowledgeable elderly woman in Noroshi, who was then 102 years old, this soybean was originally planted in an areas of the fields named Ōhama, which was filled with white flowers, therefore leading to the name of the soybean variety being *ōhama daizu*. Noto Peninsula experienced a poor crop year in 1996, but the *ōhama daizu* planted by one farmer survived the bad crop year and then aroused people's interest in this local variety. From then on, area on which *ōhama daizu* is cultivated increased steadily to 0.25 hectares the next year, and subsequently to 0.5 hectares and 0.9 hectares in each of the following years.



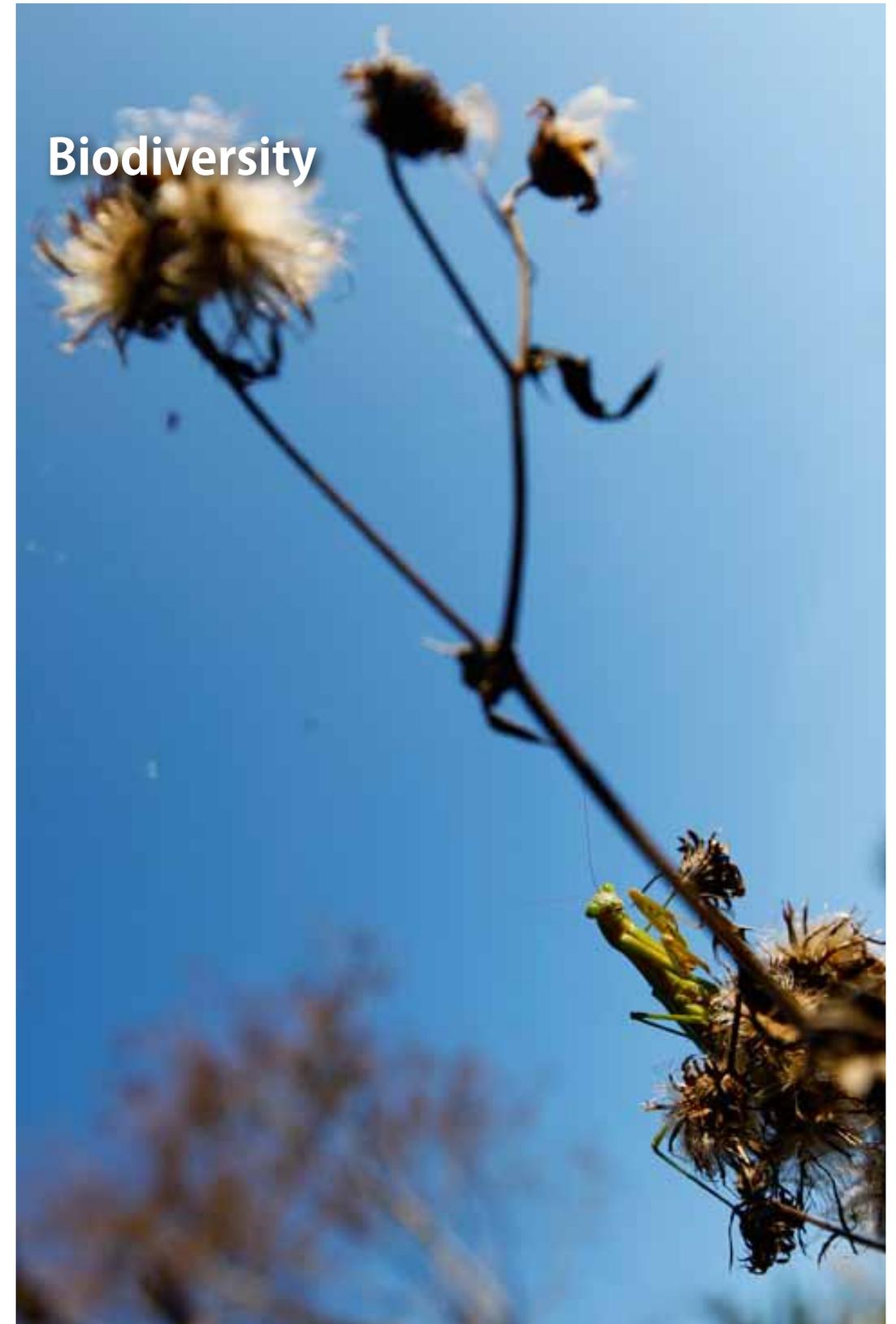
Ohama daizu flowers

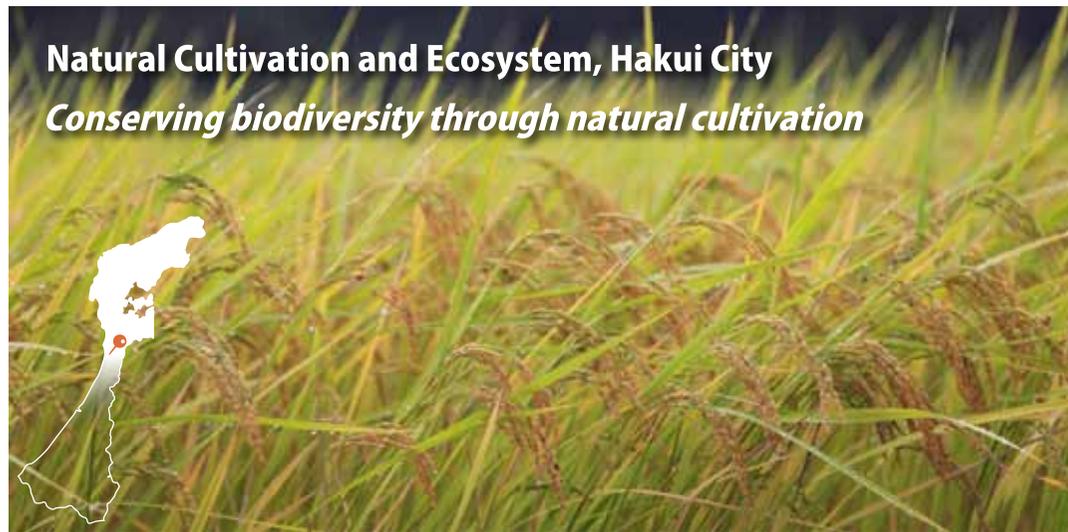
As with other local crop varieties, the production cycle of the local variety of *ohama daizu* is much longer than a new breed variety. The acreage of local varieties became very small and almost vanished due to the promotion of newly-bred species using Japan's modern agricultural technologies. *Ohama daizu* soybean ripens in early winter from November to December. However, new breeds such as the kidney bean ripen around two months earlier than *ohama daizu*. This difference in harvest time partly contributed to the sharp decrease in *ohama daizu* cultivation areas in the past, because it is difficult for these part-time farmers to wait for the harvest time of *ohama daizu* in winter. After rapid urbanization started in the 1960s, rural villages were faced with depopulation and an ageing farmer population. The primary industries of farming and forestry also sharply declined in Japan. At the same time, the number of part-time farmers increased, as many people moved to urban areas seeking short-term employment opportunities during the chilly and snowy winter in Noto Peninsula and returned to their villages the next spring in preparation for rice planting. The national government also paid subsidies for the newly-bred kidney bean, but provided none for the landrace *ohama daizu*. Consequently, the number of *ohama daizu* farmers declined. In summary, the transformed socio-economic situation and national policy have had the strongest influence on the erosion of local varieties.

However, for the past 15 years, there has been increasing interest in the recovery and processing of local varieties as specialties in Japan. As part of the rural regeneration strategy of Suzu City Municipal Office, *ohama daizu* was recovered in 1997, the year following the bad crop year in Noto Peninsula. A variety of different processed foods made from *ohama daizu* existed in the past, including fermented foods made from *miso* and *nattou*, soybean curd and soybean flour. Steamed soybean is wrapped in straw that also contains the bacterium *Bacillus subtilis*, known as *nattou-kin* in Japanese. With changing consumer preferences for traditional products these days, the traditional *nattou* wrapped in straw made from *ohama daizu* sold like hot cakes at local events in Suzu City in 2011. Shin said that around 3,000 packs of *nattou* were sold even though each was priced at JPY 1,200, several times the market price of ordinary *nattou*.

The dedication of Shin and his community to the development of local delicacies and specialties from this local soybean variety has led to positive returns. Their tireless endeavours have made this small agricultural business profitable and their initiative was recognized as one of the best practices in an area facing depopulation. They received the Award of the Minister of Internal Affairs and Communications along with three other remote communities in 2012. Shin said that he is already 76 years old, and hopes that a young successor will take his place. He expressed his dream that young people would soon return to their hometowns.

Bixia Chen (UNU-IAS OUIK)





Natural Cultivation and Ecosystem, Hakui City
Conserving biodiversity through natural cultivation

Natural cultivation is an emerging farming trend in Japan that features no input of any fertilizers or pesticides or herbicides. Natural cultivation is practiced by a small number of farmers who wish to avoid the negative effects brought on by the input of chemicals used in conventional farming. Natural cultivation is different from organic farming in Japan, which allows for the use of organic fertilizers, as it does not involve modern synthetic inputs such as synthetic pesticides and chemical fertilizers. Hakui City in Ishikawa is actively promoting a natural cultivation movement. Hakui City is located in the southern part of Noto Peninsula, with a total area of 81.96 square kilometres. At the end of 2011, it had a population of 23,533 people with 8,370 households and a density of 287.13 people per square kilometres.

An inspiration to the people of Hakui City regarding their natural cultivation endeavours is the success story of Akinori Kimura, an apple farmer in Aomori Prefecture. Well-known nationwide for almost eight years endeavours growing apple trees without any organic or chemical fertilizers, or pesticides, Kimura believes that agriculture and the surrounding ecosystem are integral part of nature; nature can nurture crops, vegetables and fruits using its own power. Nutrients and micro-organisms inside the soil are sufficient for growing plants. Plants will grow resistant to pests when they have to depend on their own power to fight against these enemies. Conversely, the input of fertilizer or pesticide use will weaken the plants' vitality and immunity. Kimura's apples are called the "Miracle Apples", and it is said that they can be kept for up to two years without spoiling. His story inspired numerous people who are concerned about environmental conservation and food safety to explore real tastes and safe food in Japan.

Inspired by the success of this "Kimura Cultivation Method", the Section of Agriculture, Forestry and Fisheries of Hakui City saw natural cultivation in Hakui as a good opportunity to enhance agricultural income by targeting a niche market of high quality produce. Thus, in 2011, Kimura was invited to Hakui to share his cultivation techniques with participants from all over Japan and his experiences were well received by the local farmers. Subsequently, in collaboration with the Japan Agricultural Cooperatives (JA) Hakui, the Hakui City Municipal Office launched a series of lectures on natural cultivation farming to teach farmers how to produce safe and high quality rice without negative environmental impacts. It is believed that healthy paddy field ecosystems will be recovered and foster abundant living creatures ranging from micro-organisms to fishes, birds and insects. The overall target is to differentiate the food produced on improved land at a small scale in the global market. A three-year schedule of natural cultivation training courses on rice, vegetables and fruits will be conducted under this initiative. Masayoshi Tagami was among the first rice farmers who practiced natural cultivation, starting with experimental farming on a small plot.

Masayoshi Tagami, 63 years old, started natural cultivation in 2010. His son, Satoshi Tagami, 35 years old, is helping with farm work in addition to his daily work as a local government staff member. At first,



Tagami practiced natural cultivation farming on a plot of paddy field around 0.05 hectares in size, but now his naturally farmed rice is going to be expanded to 0.15 hectares in 2013. Tagami's relatives, including his nephews, are going to join to help with rice planting and weed removal this year.

Tagami recalled that he was concerned with the deterioration of the soil when his rice planting was heavily dependent on the use of chemical fertilizers and a number of insecticides and herbicides. In order to reverse the declining trends of soil quality and the paddy field ecosystem, he decided to take up natural cultivation. Tagami took the challenge of natural cultivation, immediately switching to zero chemical inputs to his crops instead of using a gradual reduction. In the first year after he switched to natural cultivation, his harvest decreased to only half of that produced by conventional farming. On the third year, the harvest amount gradually recovered to around 68.5 percent of the previous harvest obtained through conventional farming. Tagami's attempt was a bold move considering that it usually takes several years for the crops to cope with the new environment after conventional farming is converted to natural cultivation. It is said that it takes around five years on average to return to a harvest amount equivalent to that of conventional farming.

The biggest challenge of natural cultivation, according to Tagami, lies in the large amount of labour input needed for weeding. He removed the weeds inside the paddy fields four times in 2012. Each time, he spent around one week, about four hours each day, pulling the weeds by hand. He also used a traditional weeding instrument to remove the weeds twice during the early stages of rice planting when the rice seedlings are still short. He said that he also had one weeding tool that was used in the past. It is a traditional weeding instrument that does not operate using an engine, and was thus helped to save energy by not needing to use gasoline. He received the weeding tool that he is using now from his neighbour. Tagami hopes that natural cultivation will be increasingly understood and practiced by local people.

The natural cultivation course at Hakui not only inspired the locals, but also many others outside of Ishikawa. Kazuhiro Masuda, 35 years old, used to live in neighbouring Toyama Prefecture as a salaried office worker. He came to know about natural cultivation through the courses offered at Hakui City and was inspired by Kimura's story of apple cultivation. He seized the opportunity to become a full time farmer and moved to Hakui City with his wife and young daughter in 2011. Masuda is proud of his new career as a farmer nurturing living things and nature. His dedication to natural cultivation is partly due to his hope of feeding his young daughter with the safest and best food possible. The birth of his daughter impelled him to reconsider the environmental impact brought on by the excessive use of chemical fertilizers, pesticides and herbicides. Masuda grew a total of around 50 species of vegetables in 2011 and started to farm rice

two years later in 2013. He said that he did not cultivate any hybrid seeds that are produced by cross-pollinated plants, although hybrid seed production is predominant in agriculture and home gardening nowadays. He only planted local varieties and minor landraces, and seeds were kept and collected for next year's planting. While some farmers worry that consumers may not be familiar with local varieties and not know how to cook them, Masuda confidently claimed that the locally-bred vegetables are actually tasty and have an authentic flavour. He said they are particularly popular with aged consumers who, with a sense of nostalgia, were delighted to have the local varieties brought back.

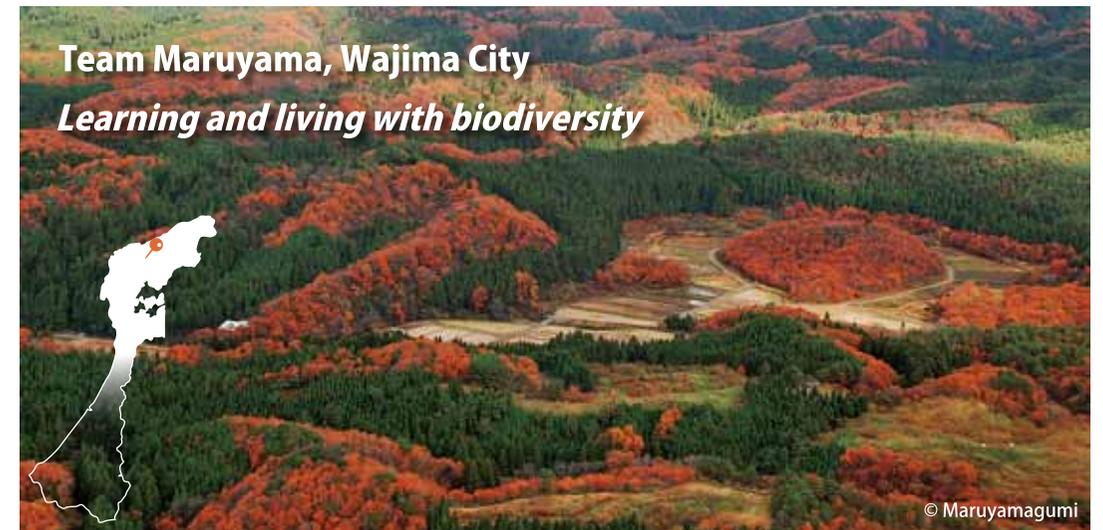
At present, Masuda is planting three hectares of vegetables and two hectares of rice together with his wife. He said that he is very contented with his life now as he can spend most of his time together with his wife and young daughter. He mentioned that it was almost unthinkable to have a fun time with his family when he was employed at a printing plant in Toyama. According to Masuda, it seems that quality time to interact with other family members is the greatest benefit of his farming job.

Although a young farmer new to this area, Masuda also shared his big dream to recover Noto Peninsula as a habitat for *toki* (Japanese crested ibis, *Nipponia nippon*) by enlarging the natural cultivation field area in Noto region. Coincidentally, Ishikawa Prefecture was the place where the last *toki* in Japan was captured. Thus, Masuda is dedicated to farming in harmony with the environment in order to produce safe food and a healthy agro-ecosystem. Making a living solely on farming is very challenging nowadays because of the low price of farm products compared with the high living cost in Japan. Masuda shared his upcoming plans for online sales of both his fresh vegetables and processed agricultural products such as jams, pickled vegetables, and Japanese-style preserved food, in order to increase his income. He hoped that his success story would motivate more farmers to take up environmentally friendly farming.

JA (Japan Agricultural Cooperatives) Hakui supports a group of rice farmers to sell their naturally cultivated rice, which was produced without the input of chemical fertilizers, pesticides or herbicides. JAs are established in every prefecture and municipality throughout the country, and are based on the principle of mutual cooperation, with the purpose of protecting farming and the livelihoods of individual farmers. These JAs are engaged in a wide range of activities including providing guidance on farming technologies, marketing of farm products, supplies of production inputs, and insurance and financial services. Support from JA is significant for farmers since they can take advantage of the powerful marketing channels for natural cultivation products.

Nagayuki Watari, a staff member of JA Hakui, said that the total cultivation area of natural farmed rice reached 1.7 hectares in 2012 by six farmers from Hakui County, north of Hakui City. In order to promote and extend natural cultivation technologies, Watari said that some quantitative data on natural cultivation should be collected to deepen understanding of natural cultivation. In 2013 and 2014, JA Hakui is determined to conduct experimental cultivation to calculate how much additional labour time is needed for natural cultivation compared with conventional farming. The objective of this experiment is to find the additional costs of natural cultivation compared with conventional farming, in order to address the economic concerns of farmers when persuading them to adopt natural cultivation. Applied technologies of natural cultivation will then be further developed and extended to local farmers. In other words, the biggest challenge for expanding natural cultivation, according to Watari, lies in the farmers' recognition of the co-existence of natural cultivation and conventional farming.

Bixia Chen (UNU-IAS OUIK)



Noto Peninsula, projecting into the Sea of Japan from the coast of Ishikawa Prefecture, is located at the intersection of the warm Tsushima Current and cold Liman Current. These warm and cold ocean currents contribute to the climate diversity around the peninsula, and create rich terrestrial and marine biodiversity. This vibrant biodiversity has had a tremendous impact on all aspects of human life in *satoiyama* and *satoumi* areas, including culture, tradition, agriculture, education, scenery and many other things. Noto's Wajima City is a great example of how biodiversity has affected the daily life, culture and spirit of local people. It can be felt by visiting the beautiful mosaic landscapes, the city's famous morning market, with its abundance of sea, forest and agricultural products. The biodiversity of *satoiyama* is also used as a motif for the design of the area's well-known lacquerware as well as other traditional arts and crafts.

The small town of Mii is 15 kilometres from the Wajima market, and includes a village called Ichinosaka. This is a typical *satoiyama* area, where arable land abuts the foothills of the mountain and once provided one of the vibrant habitats for Japanese crested ibis (*Nipponia nippon*). One of the distinctive features of Ichinosaka Village is a small hill, called Maruyama, meaning "round hill" in Japanese. Its shape resembles an upturned bowl, and it is surrounded by rice fields with springs and nearby forests. The Maruyama area was maintained by local residents, and the mosaic use of its resources created a habitat for many kinds of living organisms.

According to a monitoring survey by Kanazawa University in 2012, 84 aquatic fauna including seven endangered species and 305 plant species including eight endangered species were recorded around Maruyama Village. The rice fields provide habitats for many small water plants, and quite a few of these were identified as endangered species, including Asian marshweed (*Limnophila sessiliflora*) and duck lettuce (*Ottelia alismoides*). Many rare amphibians such as the Hokuriku salamander (*Hynobius takedai*), Japanese firebellied newt (*Cynops pyrrhogaster*), and forest green tree frog (*Rhacophorus arboreus*) were also recorded around the paddies. Agro-diversity is also rich in this area, where there is cultivation of rice, soybeans, *adzuki* beans (*Vigna angularis*), vegetables like the Noto pumpkin and a native sweet melon called *babauri*. Farmers have also been managing the forests surrounding the village for thousands of years, and their resources have been used for fuel, construction materials and the crafting of different utensils for daily use. Each year, broad-leaved trees, such as oak, are used for firewood and charcoal making, while coniferous trees like pine are used as building materials.

This abundant diversity of life was once lost in Maruyama when the farmers started to use chemical fertilizers for cultivation after 1960s. It was re-created thanks in part to the efforts of the young farmer Hiroshi Arai, a 32 year old from outside the area, who moved here to practice a no-plowing, no-chemicals,



no-fertilizers method of cultivation around Maruyama since 2009. The rice grows according to the natural forces of the fields' biotope, and is a perfect habitat for aquatic flora and fauna. Arai owns 19 pieces of rice fields covering 2.3 hectares, and he gained huge popularity in Ishikawa Prefecture as he performs all the work in the fields alone and pulls the weeds by hand each year.

For the last ten years, Maruyama Village has attracted numerous scientists, researchers and nature lovers from all over Japan coming to explore its invaluable biodiversity. Together with local villagers, they have created a community called Maruyama-gumi ("Team Maruyama"), which aims to transmit traditional wisdom and conserve the biodiversity of *satoyama* through education, arts, food, agriculture, welfare, and a variety of fun activities. Maruyama-gumi owes its existence to the efforts of its founder Yuki Hagino, a mother of three, who organizes all the activities together with the local villagers. Hagino's story begins far away from *satoyama*. She was originally from Tokyo and has a specialization in building construction and design. Together with her husband, she later moved to the United States to continue her studies and started to work for a construction company as a designer. However, living in a different culture, she always found herself confused when having to answer questions about her culture, religion and traditions. She felt her identity as a Japanese was unknown, closed part of her life, something she never thought deeply about and which she could not explain for herself or for others. She strongly felt that it was her duty to find out more about her identity, not only as an individual, but as a mother, so that she could transmit this to her children.

Such an opportunity arose during one of her projects at work. She was working on graphic designing for books and became to be very interested in paper-making, especially in *washi* (traditional Japanese paper). She was advised by one of her American friends to visit Mii Town in Noto, where there is a traditional Japanese paper-making studio. Following this advice, she visited Noto and this was the first time she encountered *satoyama*, where she was deeply impressed by the lifestyle of the locals. She and her husband then decided to move to Noto in 2004, and built a house on a hill near Maruyama. The Hagino family soon became very familiar with all the villagers and they wanted to be helpful in some way to the local community.

From 2007, a biotope monitoring organization from Wajima City was sending many researchers to Mii Town for environmental studies, and was providing the locals with ideas about the creation of biotope rice fields in Maruyama. Hagino joined the researchers and also encouraged other local villagers to take part in such research activities. The organization, however, was closed after several years. Nevertheless, Hagino, along with local residents and volunteers, continued the activities and now works together with scientists from Kanazawa University organizing biodiversity monitoring activities every month. They keep records of fireflies, frogs and all the plants found in the village, some of which are designated as endangered species,



Chestnut leaf and pine needles for Aenokoto

and send all of this information to an NGO called The Nature Conservation Society of Japan (NACS-J), which promotes the conservation of *satoyama*. NACS-J consolidates the nationwide data for all species, including endangered ones, and creates maps about their location, and later sends the records to the Ministry of the Environment of Japan.

Hagino also decided to share these biodiversity records with the local farmers and villagers. But it was difficult to attract them with only scientific data, so she worked together with Arai to create a Maruyama-gumi event similar to the *Aenokoto's* ritual of Noto, modifying it with new interpretations of *Aenokoto's* traditional practices. *Aenokoto* is a ritual unique to the Noto region, which was designated as a UNESCO Intangible Cultural Heritage and a significant cultural component of Noto as a Globally Important Agricultural Heritage Systems (GIAHS) site. In this ritual, after the harvest, a farmer receives the spirit of the paddy field into his home during the winter and accompanies it back to the field in early spring for rice cultivation. Based on tradition, Maruyama-gumi holds an event similar to *Aenokoto* twice a year. They use pine needles (*matsu*, which in Japanese also means "to wait") and chestnut leaves (*kuri*, the sound of which also means "to come"), and wrap these with paper listing the names of all the plants and creatures recorded around Maruyama, and naming them as the Gods. The pine and chestnut wrapped in the paper symbolizes "waiting for the spirits to come", which makes the locals feel spiritually attracted and emotionally closer to the event. To greet the spirit all participants gather in Arai's fields and express their respect and gratitude. The event has recently been accompanied by home-made dishes of Maruyama-gumi, using edible ingredients from the area, and together the people celebrate the spirit of *satoyama*.

To organize these events, Hagino has a small assistant, her nine year old daughter Tsuki. Tsuki was only one year old when her family moved to Maruyama. She is growing up in *satoyama* and now she is a fourth grade student at Mii Elementary School, which has only 34 students. Hagino decided to organize educational eco-activities for the students of Mii Elementary School, utilizing the abundant nature of the paddy fields, hills, and rivers around Maruyama, which contain all kinds of animals and plants that can be studied. She spoke directly with the principal and school teachers, and was able to gain their trust. In the summer, Hagino and her team conduct Education for Sustainable Development (ESD) classes in the form of natural workshops for elementary school children from local areas as well as from outside of Ishikawa Prefecture.

Arai has also greatly contributed to these educational activities. He even took the initiative to deepen his knowledge of biodiversity by enrolling in the Noto Ikimono Meister Training Program of Kanazawa University, supported by the Nippon Foundation. Hagino herself has also finished this Meister program. She mentioned that in the past Arai could not answer when children asked him the names of plants or small insects, but now, after the training, he is able to give in-depth answers about these organisms.



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Little Tsuki said that during the summer vacations, most children in the neighborhood enjoy playing in the paddy fields where there are lots of tadpoles and *medaka* (Japanese rice fish), and enjoy watching the fireflies at night. She said that during the monitoring events, even though she could not remember the names of the plants, she could easily distinguish the edible plants from poisonous ones in the forest, and would gather lots of them to eat. In 2012, NACS-J, organized a drawing contest for school children under the theme “My Observations of Nature”, and Tsuki participated in the contest, because her favorite subject at school is art. Together with her friends at school, they drew a picture in which they depicted Maruyama as a village where all creatures live in harmony with farmers. Their drawing was received an award as one of the best pictures in the contest. Tsuki said that she has a deep love for all creatures in Maruyama, and her dream is to be a veterinarian when she grows up.



Berries of *Rubus palmatus* var. *coptophyllus*

© Maruyamagumi

To conserve such a vibrant biodiversity of *satoyama* for its sustainable future, it should not only give recognition for the old lifestyle, but also in the form of actions and deeds through using and passing on the natural gifts to future generations. The main key to such conservation of biodiversity is to apply knowledge into practice. Hagino’s attempts to conserve and transmit the beauty and biodiversity of *satoyama* to the next generation through action and learning are one such good example, although they require tremendous amounts of effort and time. Hagino is determined to continue these activities, as Maruyama is now the home where she has found her identity and answers to all the questions she previously could not explain while she was studying abroad. She truly believes that “the tomorrow of Japan begins in *satoyama*”.

Aida Mammadova (UNU-IAS OUIK)



Traditional Knowledge



At 36 years of age, Chouichiro Ōno of Suzu City is one of the few young full-time charcoal makers in Japan today. Suzu City has a thick forest covering 73 percent of the land area, and some of its major non-timber forest products include *matsutake* mushroom and charcoal. Ōno's father set up a charcoal making plant inside the hills of Suzu City in 1971, during the time when traditional charcoal making was abandoned due to the Energy Revolution and the switch in energy resources from domestic charcoal to foreign petroleum. After a short-term experience as an office worker, he followed in the steps of his father to become a charcoal maker in 2000 when he was 22 years old. Ōno inherited the charcoal making plant when his father passed away in 2003.

Charcoal manufacturing technologies have been developed for hundreds of years in Ishikawa Prefecture. The Noto and Kaga regions, which are located at the northern and southern part of Ishikawa, became well known for their high quality charcoal during the Muromachi period (1336-1573). During this period, the artistry of Japanese tea ceremony placed a high value on charcoal, not only as fuel to boil the water, but also for the aesthetic beauty of its shape. With the improvement of charcoal making technologies, *kunugi* (chestnut-leaved oak, *Quercus acutissima*) trees were felled to burn the *kokutan* (black hard charcoal, also called *katazumi* in Edo period), which were used for Japanese tea ceremony and also known as *chanoyuzumi*. During the Edo period (1603-1868), high quality charcoal produced in Noto Peninsula was widely used for the tea ceremony practices in Kanazawa City.

With the increase in living standards for the common people after Meiji era (1868-1912), charcoal consumption exploded as a large number of common people could also afford charcoal. Because of the strong market demand, charcoal making even became an important supplementary income source in addition to farming in Ishikawa. Some farmers were said to have quit their sericulture livelihoods to work in charcoal industries in today's Kaga City and Mount Hakusan areas, where slash-and-burn shifting cultivation was practiced in the past. In 1931, charcoal production accounted for around 53.9 percent of the total forestry production in Ishikawa, and became a pillar industry of the mountainous and hilly village economy. The market demand for charcoal dropped sharply after the so-called fuel revolution, which saw energy sources switch from wood charcoal fuel to fossil fuel from 1955 in Japan. Both charcoal production and the number of people engaged in this industry decreased dramatically as propane gas became extensively used in Japan, even in remote mountain communities. As a result, some charcoal makers quit charcoal manufacturing and converted to *shiitake* mushroom cultivation.

According to statistical data from the Forestry Agency, a total of 59 tonnes of *kokutan* were produced, while *hakutan* (white hard charcoal) was not produced in Ishikawa Prefecture in 2011. The total amount



Chouichiro Ōno

of charcoal and *kokutan* produced in Ishikawa Prefecture ranked 25th and 19th, respectively, of the 47 prefectures in Japan in 2011. At present, there are a total of about 15 full time and part time charcoal manufacturers in Ishikawa Prefecture. The majority of these are based in Suzu City and Noto Town, within the northern and central parts of the Noto Peninsula. Recently, efforts have been underway by the Ishikawa Charcoal Manufacturer Association to increase the production of *kokutan*. It is expected that charcoal making activities will also contribute to sustainable utilization and management of *satoyama* in Ishikawa Prefecture.

Facing the challenges of a declining traditional technology market in this modern age, as a charcoal making plant owner, Ōno started to think about his own management strategy. He came to terms

with the fact that it is difficult to make profits while having to compete with the cheap charcoal from other countries such as China, Malaysia, Indonesia, Canada, etc. Ōno then decided to specialize in the production of *kokutan* used for traditional Japanese tea ceremony. He has been making efforts to diversify his charcoal products, converting from the single traditional product of fuel charcoal to also produce high quality charcoal in order to survive in the shrinking market for traditional industry in the face of the world's trends towards globalization. Thus, while he continues his father's traditional technologies of charcoal manufacturing, Ōno has also started to think about producing high quality oak charcoal called *kikuzumi*, which has a cross section that looks like *kiku* (*Chrysanthemum*) flowers.

Ōno's charcoal making plant has four kilns and currently produces a total of 25 tonnes of charcoal per year, ranking first in terms of scale of production in Ishikawa Prefecture. He used to produce about 30 tonnes of wood charcoal in the past years but recently had to reduce the production amount since he is busy replanting trees. He hopes that he will return to the past production level of 30 tonnes. He also produces charcoal for a wide range of modern uses, such as pillows stuffed with charcoal, charcoal used for improving soil quality, and pyroligneous acid (wood vinegar) produced as a by-product of the charcoal manufacturing process. By producing this wide range of non-fuel products, Ōno believes that his charcoal manufacturing could also contribute to carbon fixation to prevent global warming.

However, Ōno stressed that *satoyama* of traditional productive coppice forest has greatly declined due to the underutilization of forest resources after increasing migration to urban areas. He said that after about eight years, *kunugi* trees are of an appropriate size to produce the highest quality charcoal and could fetch a high price. However, Ōno said that *konara* (*Quercus serrata*) trees used for charcoal production in the mountain have become overgrown due to underutilization and are no longer suitable for high quality charcoal production. Moreover, the *konara* forests have been widely destroyed by the *kashinaga kikui-mushi* (*Platypus quercivorus*) pest. As a result, it is now difficult to find eight-year-old, naturally grown *kunugi* trees in the mountains of Noto Peninsula. Thus, Ōno decided to plant *kunugi* trees on the abandoned land and also has been working on forest management.

Ōno purchased a large area of abandoned land and started to plant about 1,000 seedlings of *kunugi* trees there with the help of his friends in 2004 to produce high quality and high value-added charcoal. In collaboration with the local NPOs *Noto Hantou Oraccha no Satoyama Satoumi* and *Okunoto Hikirai*, tree planting events have been held annually since 2008 to enhance the interaction of urban dwellers with *satoyama*. Around 150 volunteers from Ishikawa Prefecture participated in the event in 2012. The first planted *kunugi* trees were felled in 2012 for sale in 2013. Now the preparation work is underway to commercialize the newly-produced charcoal. A designer who moved to the area named Yuki Hagino (also the head of Maruyama-gumi as mentioned in the earlier story), is helping with the charcoal package design



Kikuzumi charcoal made of kunugi wood

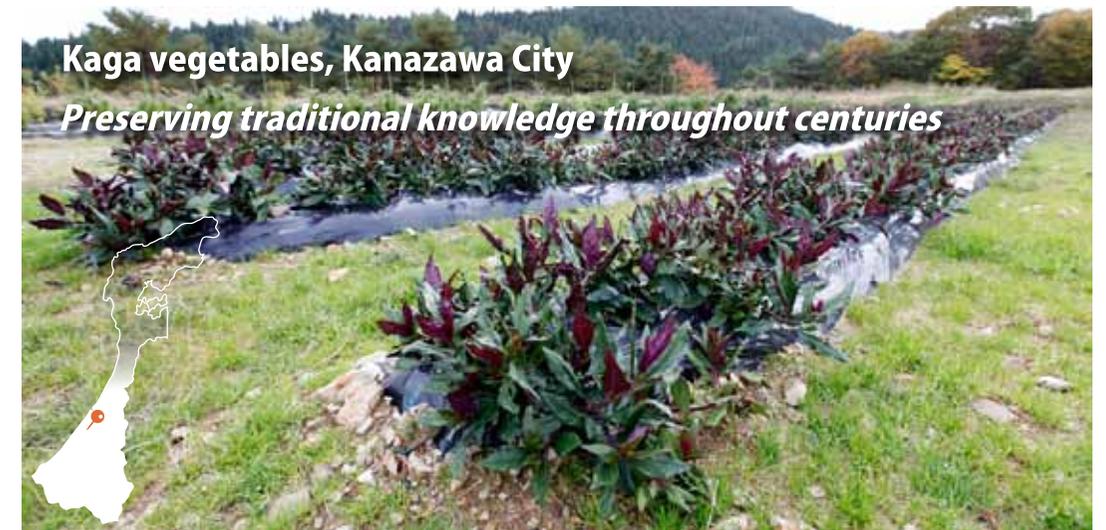
by using the *Satoyama* Creation Fund, a subsidy system created by the Ishikawa Prefectural Government in 2011 for the purpose of sustainable management and recovery of *satoyama*. Ōno mentioned that he has received overwhelming pre-order sales for *chanoyuzumi*. He said that his tree planting and *satoyama* management activities have greatly helped his sales of *chanoyuzumi*, which are selling like hot cakes. Professional knowledge pertinent to branding design and marketing promotion provided by Hagino also greatly contributed to the commercialization of Ōno's charcoal for use in tea ceremony.

Reforestation of the mountains in Suzu City also helps to revive the ecosystems and nurtures biodiversity. Biological surveys are being conducted in the *kunugi* plantation site with the support of an ecologist from nearby Kanazawa University since 2004. According to Ōno, around 67 species of herbaceous and woody plants could be found inside *kunugi* forest after it had been planted for eight years.

Reflecting on his years spent in the mountains of Suzu City, Ōno seems very satisfied with his current charcoal making life, living happily in the mountains far away from urban areas. He now has his own family including a seven-year-old daughter and a two-year-old son. His wife is working at a private company to supplement the family income. He said that he would like to have more children, because they are the hope for this remote mountainous village with a population that continues to decline.

Ōno thinks the recovery of high quality *chanoyuzumi* production for traditional Japanese tea ceremony will boost his small charcoal business. His initiative of planting *kunugi* forest on abandoned land to produce wood for charcoal production also contributes to the restoration of *satoyama* in Noto Peninsula. In the near future, Ōno hopes to be able to earn a living solely based on his family's charcoal making tradition. He is also planning to establish a Charcoal Collaborative in order to work more closely with other charcoal makers in the Noto region. Ōno's project showcases a new potential for restoring the socio-ecological production landscapes of *satoyama* by adapting to the niche market demand for quality commodities for specific traditional cultures.

Bixia Chen (UNU-IAS OUIK)



Kaga vegetables, Kanazawa City

Preserving traditional knowledge throughout centuries

Since the Edo period, Kanazawa City, the capital of Ishikawa Prefecture, has been famous for its unique culture including traditional arts and crafts. Its flourishing culture depends on rich biodiversity, which also fostered its vibrant food culture. Famous for its fresh seafood, high quality rice and traditional vegetables, Kanazawa cuisine is an artistic combination of the finest ingredients that is exhibited in refined flavors. This local food culture has played an important role for the continuous cultivation of traditional vegetables, selected over the centuries for their desired characteristics, specific to the local soil and climate.

It is believed that the history of traditional vegetables in Japan started more than ten centuries ago, when Buddhist monks travelled to China to study, and brought back flowers, seeds and vegetables to Japan. On their return home, the monks often gave *Houonko* talks (religious gatherings), which followed complimentary meals of "exotic plants". Peasants all over Japan became very interested in these plants and collected the seeds to cultivate in their own fields. In the 15th century, monks brought some of these vegetables to the Hokuriku region, and these were later spread to Ishikawa. After hundreds of years of cultivation, people of Ishikawa were able to create local varieties specific to their *satoyama* and *satoumi* landscapes. At the beginning of the 20th century, more than 30 varieties of traditional vegetables were cultivated in Kanazawa. In 1997, for the preservation of the traditional vegetables, 15 of the vegetables that were most popular among locals were chosen and branded as "Kaga vegetables" (Kaga is the ancient province name for southern Ishikawa under the Maeda Clan rule) by Kanazawa City and local branches of Japan Agricultural Cooperatives.

Unlike other new breeds, Kaga vegetables follow the natural seasonal rhythms and are acclimated to the specific landscapes with their different soils and climate conditions. Coastal areas of the city with sand dunes are ideal for cultivation of sweet potato, *gensuke daikon* (radish), *Kaga futokyuri* (cucumber) and *Utsugi akagawa amaguri kabocha* (pumpkin). The north-eastern area with its plains and wetlands mainly grows lotus roots, arrowhead bulbs and *shungiku* (crown daisy) leaves, while riversides to the south-east produce eggplants, Japanese parsley and mustard greens. Mountain areas with lots of moisture are the best places for the cultivation of bamboo shoots, *kinjiso* (Okinawan spinach), hyacinth beans, *akazuiki* (petioles of taro) and green onions. This method of farming adjusted to the natural conditions of the land relies on fewer chemical inputs and thus contributes to preservation of the soil.

However, Japan's post-World War II conditions and a period of high economic growth in the 1950s put these traditional vegetables in danger of being forgotten. Their survival today may be due more than any other person to Ryo Matsushita, the fifth generation owner of a seed-store-house in Kanazawa City that has been in operation since 1861. His father was a breeder, who created new kinds of vegetables specific to the Hokuriku region through genetic seed selection and sold them across Japan. Almost all of the fields



in the Hokuriku region were destroyed, however, and lots of seeds were lost during World War II. Fortunately, Matsushita preserved some of these seeds, but they were very fragile and required hard work and careful cultivation. Traditional vegetables were therefore not popular among local people, who were only interested in cultivating rice at a time when the whole nation was eager to produce enough of its staple food to keep people out of hunger, and when people were not too particular about taste.

In collaboration with local farmers, Matsushita decided to use the remaining seeds to create vegetables which are easy to grow, disease resistant, well-shaped and most importantly, endowed with a tasty flavor that is appropriate for use in traditional cuisines. After many years of careful genetic selection of seeds with the best characteristics, they succeeded in breeding 32 traditional vegetables. In 1991, Matsushita created the *Association for the Conservation of Kaga Vegetables* to encourage local farmers to cultivate traditional vegetables and conserve their seeds. In recognition of his efforts, Matsushita's 220-year-old seed shop was designated as a National Treasure by the Japanese government, and he still runs the patriarchal seed storehouse to create and conserve the seeds today. Matsushita said that the most important drive to preserve ancestral knowledge did not come from monetary interests, but from a deep respect for the work of his ancestors, who devoted their lives transmitting this traditional knowledge on to the next generations. Like his ancestors, Matsushita will be passing on this knowledge about seed selection to his eager successors from the next generation, his daughter and grandson.

Like Matsushita, another farmer devoted to the preservation of traditional vegetables is Isao Nishino, 69 years old. He became famous for *kabocha* (pumpkin) cultivation in the *satoumi* coastal area of Utsugi Town in Kanazawa. The pumpkin variety that Nishino produces was first grown in Fukushima Prefecture and then brought to Utsugi Town in 1933 by one of the innovative farmers of that time named Saichiro Matsumoto. Matsumoto named this pumpkin *Utsugi akagawa amaguri kabocha*, which means "red skinned, sweet chestnut pumpkin of Utsugi". Nishino's father was one of the farmers who learned pollination and cultivation methods from Matsumoto, and subsequently transmitted them to his son.

Nishino used to work as a bus driver for living, but from a young age would always help his father in the fields whenever he could. After his father passed away, he started to work in the fields to continue his father's legacy. However, as the *Utsugi akagawa amaguri kabocha* was very damp and sticky and thus not commercially profitable, all the farmers in Kanazawa stopped producing it and switched to growing watermelon. It was then a really challenging



Utsugi akagawa amaguri kabocha seeds



Isao Nishino and his wife

period for Nishino as he was the only farmer in the whole region who continued to produce *Utsugi akagawa amaguri kabocha*. Fellow farmers were teasing him that his efforts were useless to continue for no one would ever buy his product. Nishino recalled that several times in deep despair, he even attempted to destroy his entire field and run away from Utsugi Town. However, the memories of his father and all the people who devoted their lives to preserve this crop brought him back to the fields every time he thought of them.

In an attempt to improve the quality of the pumpkins, Nishino then decided to innovate with the cultivation method, and realized that such changes could start from seed production. He was manually and naturally pollinating the pumpkin flowers using honeybees and carefully regulating

the temperature to produce the seeds he needed. He spent more than ten years genetically selecting the seeds, and finally was able to get his ideal seed with the needed characteristics. The fruit of his efforts is a new pumpkin with hard skin, soft flesh and a sweet taste. The new *Utsugi akagawa amaguri kabocha* then began to gain huge popularity and was eventually branded as a Kaga vegetable in 1997. Today, about nine other farmers have learned from Nishino and have started growing pumpkin in the town. Nishino's dedication and persistence has moved and inspired many other farmers and local people, and now he is one of the most respected farmers in his area.

In the *satoyama* area north of Kanazawa, a small field located on the 100-metre hill of Tarawara Town is famous for the production of *kinjiso*. *Kinjiso* was first brought to Japan from China in the 18th century and was widely cultivated under a different name in Okinawa Prefecture and Kumamoto Prefecture in the Kyushu region. It was brought to Ishikawa Prefecture in 1775, but the cultivation of this plant was not so popular then and it was only consumed locally for medicinal purposes. From the 1930s, demand for *kinjiso* production increased when it became widely used in restaurants.

The ideal conditions for growing *kinjiso* are found at the foot of the mountains, where it can absorb



Saichi Nishi



Kinjiso

moisture from the morning mists and change the colors of its leaves to dark green on the surface and purple underneath. The green part contains chlorophylls for photosynthesis and the purple is rich in anthocyanins to protect the leaves from excessive sunlight, and as temperatures vary throughout the day and night, these elements change the color of the leaves. Saichi Nishi is a 70-year-old *kinjiso* farmer who works together with his wife. He inherited the field from his father, who was a very skilled farmer. Nishi, from his long experience of farming that goes back more than 40 years, and with his inherited knowledge from his father, knows how to keep the moisture of the soil just right for the plants and how to protect them from excessive sunlight. He explained that the two-sided colored leaves contain minerals and vitamins, and excess sun and heat over 30 degrees or temperatures below 20 degrees will cause the plant to lose all its natural qualities and color. To protect the leaves from excessive sunlight, Nishi shades the leaves with plastic sheets, and puts rice straws between each tuft to keep the soil wet. Because of his careful cultivation, Nishi's *kinjiso* fields have gained huge popularity across the country, and were featured on a special television program by the Japan Broadcasting Corporation (NHK) in 2011.

Nishi has a large family with three children and six grandchildren, but currently none of them are interested in continuing the family's tradition. He fears that this traditional knowledge of how to live in harmony with nature and the traditional practice of utilizing nature's gifts may disappear after he is gone. Nevertheless, he has not given up and has been conducting practical seminars for elementary school children at his grandson's school to generate interest within the younger generation about farming.

Traditional knowledge transmitted from generation to generation in *satoyama* and *satoumi* is still alive thanks to devoted people like Matsushita, Nishino and Nishi. Farmers live only on a small pension from the government and their only invaluable treasure is the tradition left for them by their ancestors. It is indeed due to such devotion and dedication that today's generation can still enjoy the delicacies and centuries-old culture of Ishikawa.

Aida Mammadova (UNU-IAS OUIK)



Culture and Society



Kinameri is a small village in Hakusan City situated to the south of Kanazawa City at the foot of the sacred Mount Hakusan. This *satoyama* area is surrounded by the Tadori River and the high hills of Mount Takakura. Agricultural activities play an important role in the lifestyle of the local people. Before rice cultivation started in Kinameri, hemp cultivation and sericulture for making cotton and silk were the main sources of local income. Villagers were selling these products to other regions, as they were very light and easy to transport. In the 15th century, because of the *Ikko-ikki* movement in the Kaga area (a movement during which farmers and monks rebelled against a governor of Kaga province), the entire village was burnt and the majority of the villagers were killed. Those who survived ran into hiding in other hills and returned back to resettle the village three years later. About 200 years ago, water channels were dug in this area to create water-generated electricity for the Hakusan area, thus providing the fields with water and promoting agricultural activities. The total population of Kinameri Village was then estimated to be more than 300 people in 1876. In recognition of the importance of this area as a valuable ecosystem of the Hakusan region for hundreds of years, the village was designated as one of the *Satoyama* Preservation Areas of Ishikawa Prefecture in 2009.

Today, Kinameri Village has three areas with three communities called upper-Kinameri, lower-Kinameri and new Kinameri. As of February 2013, the total population of the village was only 126 people from 48 families. The majority of the population is aged 65 years old and above (52 percent), and the minority is aged 20 years old and below (7 percent). With the growing aging population, many people have stopped farming and their fields have been abandoned. The village is now in danger of being forgotten and losing its culture and traditions.

Fortunately, recent efforts to preserve and revive the traditional culture of Kinameri Village are being actively driven by young volunteers and local private companies. One of these movements aims to recreate and conserve the traditional way of living by holding seasonal events and festivals called "*Yama-Warai*", which means "laughing mountain". Many volunteers from all over the country were invited to the village to not only participate in traditional activities taught by the local elderly residents, but also to organize activities for them. Through this interaction, the young people can be taught by the elderly residents, and can also stimulate and inspire the elderly residents to continue preserving their culture.

One of the joyful activities of the *Yama-Warai* festival is the revival of traditional dances called "*Asangaeshi*" and "*Joukabe*", as only a few people above 80 remember the movements. *Asangaeshi* is a dance representing the activity of harvesting *asa* (hemp plant) and is usually performed in autumn, when the hemp is ready for harvesting. The other dance, *Joukabe*, has a very long history, with its roots going back

to the ritualistic practices of the Nichiren Buddhist sect. Unlike the *Asangaeshi*, which was only memorized and verbally passed on, *Joukabe* dance was recorded in the chronicles of the village. However, both dances had not been performed in more than 20 years, because most young people had left the village, and residents had stopped celebrating local festivals. To revive these traditional dances, in 2012 a dance group "*Katanna*", made up of young Japanese members performing African dances from Kanazawa City was invited to Kinameri Village. Together with local villagers, all of the ritualistic movements were studied in detail, and the dance was reborn and performed by young people together with the elderly residents.

The *Yama-Warai* festival also organizes activities on traditional hand-made crafts, an art which is now only remembered by elderly people over the age of 80. In winter, using *wara* (rice straws), the elderly residents teach children and young people how to make ropes, traditional shoes such as *warazori* and *waraji*. Sotou Myouchi, 75 years old, is famous for the stone laying practice called *ishizumi* used to construct fields, road and walls. Myouchi is a professional master and he was involved in restoration work on Kanazawa Castle's guarding walls. He kindly volunteers to impart his knowledge to anyone who has an interest in this culture of stone laying, and often teaches it at the local summer festivals.

Apart from these traditional activities, many other exciting modern activities are also organized to imbue people with a love for *satoyama* and nature. These include survival camps up on the hills without water or light, night hiking, forest walking activities, winter igloo making and sliding slopes made of snow for kids, music festivals, farming activities and the dyeing of clothes using indigo plants from the forest. *Yama-Warai* also celebrates seasonal food festivals, as the village has a unique food culture, and is famous for fermented and pickled vegetables, dishes using wild boar meat, and fresh ingredients from the forests and rivers. At such food festivals, participants from all the surrounding communities gather where old women bring out their homemade dishes on traditional small trays called *ozen*. During the *Yama-Warai* festival, local enterprises together with volunteer groups also cut bamboo for fashioning into utensils as part of their yearly efforts to manage the local bamboo forests.

To experience the traditional culture of daily *satoyama* life, an event called "*Satoyama Home-Stay*" was created, similar to that of Shunran-no-Sato in Noto. Local villagers provide their homes as a place for participants to relax while experiencing the daily life in *satoyama*, including waking up with the sun, helping in the fields in the daytime, tasting the delicious traditional food and listening to the stories told by the old people at night.

Successful organization of the *Yama-Warai* festivals owes mainly to the important role played by a private



People making fabric sandals

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Music festival in Kinameri

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company run by chief director Katsuro Kosugi. When the company travelled around Ishikawa's *satoyama* areas in 2010 on an assignment to make promotional materials for The Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD COP 10) held in Nagoya in the same year, Kinameri Village captured their attention. To their astonishment, one of the hilly areas of the village then looked like a jungle, rather than *satoyama*, as it has been deserted by elderly people who were no longer capable of climbing the hills to farm. To preserve the village from disappearing, Kosugi and his team then created a project called "*Satoyama* Preservation Project, Kinameri", which was financially supported by Ishikawa Prefecture.

Kosugi's great passion for Kinameri Village earned him the friendship and trust of the whole village. He decided to help attract the younger generation to come to the village, and the first person he asked was his daughter, Yuuka Kosugi, who was then 28 years old. Yuuka left Kanazawa City to study abroad when she was 18. She later returned to Japan and worked as an office employee at the centre of the Tokyo metropolitan area. Yuuka's life was absolutely different then; she was a city girl who used to live in a modern environment with convenience of technological innovations. During her life in Tokyo, it was difficult for her to have conversations about cultural or life values, and many times she found herself lost in her own



Yuuka Kosugi

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thoughts. Even though she grew up in Japan, she never had a chance to feel her identity and culture. When she first joined the project, Yuuka recalled that it was a "culture shock" and very challenging for her. After visiting Kinameri Village, her life changed. The villagers treated her like a grand-daughter from their own community, and taught her how to live simply in harmony with nature, away from the daily confusion and social chaos of the urban cities. Yuuka said that for the first time in her life, she felt the importance of a human being as an individual and an irreplaceable entity in the world. Her favorite activity was to listen to the stories from the past told by the elderly people, when she would feel a sense of belonging as part of one big family. Yuuka shared that she would like to record all these conversations about the history, culture and traditions to pass these on to future generations.

Unfortunately, two years ago her father Kosugi passed away, and to continue her father's project, Yuuka created her own company, dedicated to the preservation of the village. Yuuka said that to organize such festivals and to attract as many people as possible, she would walk around Kanazawa City and distribute the brochures and pamphlets she had personally made to the social organizations, schools, banks, etc. Moreover, she would visit all 48 families in Kinameri Village to inform them about the festivals. She stressed that it is important to not just give out paper information to the villagers, but to invite them personally to take part in the festivals and encourage their mutual collaboration and support. According to Yuuka,

this kind of mutual communication yielded remarkable results; the elderly people felt that they were not an old population incapable of doing anything, but that they could continue to play an important role as individuals and keepers of their culture and traditions. At the same time, the younger generation also started to feel their Japanese roots, identity and value of the community for the preservation of *satoyama*.

Kinameri Village is a great example of how *satoyama* is strongly linked to the community's culture and that culture, in turn, creates its own identity. The festivals that they celebrate, food they eat, clothes they wear, traditions they follow, and all these cultural values are inseparably connected with the resources and landscapes of *satoyama*. Loss of *satoyama* will mean the loss of an invaluable culture, and subsequently the loss of identity. Thanks to such active people like Yuuka, young people are not only able to preserve the *satoyama* by bringing laughter and joy back to the mountain villages, but are also rediscovering their national and cultural identity and how to be a part of one big Japanese community.

Aida Mammadova (UNU-IAS OUIK)



Shunran-no-Sato Community, Noto Town
A rural tourism experience of culture and values

Shunran-no-Sato was set up by a group of elderly people, who are residents from two nearby communities of Miyachi and Sakeo that belonged to the old administrative unit of Yamada District in Noto Town. The group's objective is to keep their villages alive and conserve their traditional agriculture. The Shunran-no-Sato group is located in Noto Town, a hilly area almost at the centre of the Noto Peninsula. There is a distinguishable rustic landscape, and vernacular architecture that combines black roof tiles with white walls. Here, Shunran-no-Sato is a rural tourism project, which offers guestrooms in the villagers' homes and an opportunity to take part in traditional agricultural activities, such as rice harvesting and mushroom picking in autumn. Located in Noto Town, which has a total area of 273.46 square kilometres and a population of 19,968 people with 8,045 households as of March 2013, the Shunran-no-Sato project currently involves 12 hamlets that belonged to the old Yamada District before the municipal mergers or dissolution was carried out in 2005.

The Shunran-no-Sato group was first set up in 1996 as a local level committee. It started with four *minshuku* or farm inns in 2003. The Shunran-no-Sato group established three types of accommodations to fit a wide range of budgets: traditional houses, the *Kobushi* (a deserted primary school that was reformed), and a lodge in the mountains. The deserted local primary school was remodeled as *Kobushi* guesthouse in 2006 and caters to needs for tourist accommodation. A lodge without modern facilities like access to tap water or electricity was built in the mountain, for the purpose of giving tourists a chance to experience the authentic old way of rural life. The Shunran-no-Sato group now has approximately 40 traditional houses that provide accommodation to visitors distributed in nearby communities of the old Yamada District.

Since 2006, the number of tourists using the three types of accommodation in the Shunran-no-Sato group facilities has grown sharply. The number of visitors increased from around 1,200 people in 2006 to about 5,500 people in 2012. The number of visitors staying in traditional houses increased from about 527 people in 2006 to 1,669 people in 2011 and 2,150 people in 2012. In particular, there has also been a prominent increase in the number of foreign tourists, with a total number of 600 foreigners visiting in 2012. The designation of Noto Peninsula as a Globally Important Agricultural Heritage Systems (GIAHS) site by the Food and Agriculture Organization of the United Nations (FAO) in 2011 has also played an important role in contributing to attracting visitors to this remote region.

The Shunran-no-Sato group of farm inns is endeavouring to provide tourists with local food, edible wild plants from the surrounding mountains, and organic vegetables. The 63-year-old head of the Shunran-no-Sato group, Kiichiro Tada, said that almost everything served and used in the farm inns is produced locally. Accommodation at the traditional house is provided at rates ranging from JPY 9,450 - 13,450 per night including breakfast and dinner, depending on the number of guests per group. Tada requests that food



Farm inns in Shunran-no-Sato

served in his group of farm inns must be sugar free, and that no chemical seasonings should be used. The menu, which was created by Tada's mother who is now 85 years old, is used in his inn, Shunran-no-Yado. The meals he provides at his inn use vegetables, which are cultivated without the use of pesticides, herbicides or insecticides. Only seasonal vegetables are used and cooked with a local brand of soybean sauce or homemade *miso* (traditional Japanese seasoning made from soybean, rice, or wheat with salt and the fungus *koji-kin*). The dinner offerings feature a low calorie menu so that guests under diabetic care can also enjoy their meals without worrying about their calories intake from rice.

Miyoji Matsui, a fellow inn owner, said that the primary target audience of his farm inn is urban residents, in particular the elderly people who yearn to have a nostalgic experience based on their childhood times spent in the rural environment. In return, Matsui said that he also enjoys the interactions he has with his guests while managing the farm inn. He also picks seasonal edible wild plants from the mountains and preserves them in traditional ways for use over the whole year. Wild leafy vegetables are usually pickled, while the new sprouts of trees are dried. The abundant species of wild plants in the spring and wild mushrooms in the autumn from the mountain forests in Noto Peninsula have provided the local community with precious food resources. Matsui feels that the traditional knowledge that has been developed regarding the cooking and preserving of wild plants and mushrooms should be valued as an important cultural heritage of the Noto region. Around 180 species of useful edible wild plant have been recorded in Noto Peninsula. Almost all parts of the wild plants, including their leaves, stems, flowers, tuberous roots, sprouts, etc. can be used as food or medicine. Local people have learned how to identify edible wild plants and their habitats from living side-by-side with their parents or grandparents. Continuing to emphasize the benefits of wild plants, Tada said that there is a sharp bitter taste to the edible wild plants, which contain a plant alkaloid that can detoxify their body after a long cold winter, contributing to a health improvement. Tada insisted on only providing authentic local cuisines to even foreign tourists, as Tada seeks to "provide the authentic experience".

Tada aims to revitalize his home village by developing rural tourism to enhance the incomes of local people. He said that if each household is able to earn around JPY 400,000 per month, then young people will return to stay in their hometowns. However, more than half of the paddy fields in Shunran-no-Sato are currently abandoned, in particular those that are located in remote areas away from the village. Tada revealed that a local construction company has promised to restore around 20 hectares of abandoned paddy fields from early 2013. A group of retired urban residents in Kanazawa City, who originally came from the old Yamada Village, is organizing a supporting club of 40 members from Kanazawa who commute to Noto Town to restore their family's paddy fields.



Tada teaching children firewood chopping



declining rural community by providing urban visitors with an authentic experience of rural Japan. The designation of Noto Peninsula as a GIAHS site also seems to have attracted international visitors' interest in Shunran-no-Sato. Such rural tourism in these remote hilly areas indicates the high value and potential inherent in these localities and their respective traditional knowledge for rural regeneration. While Tada is happy with the growing tourist business, he is more content to find that his initial purpose for establishing this farm inn group has been partly accomplished, as several young people have now returned to their hometown.

Bixia Chen (UNU-IAS OUIK)

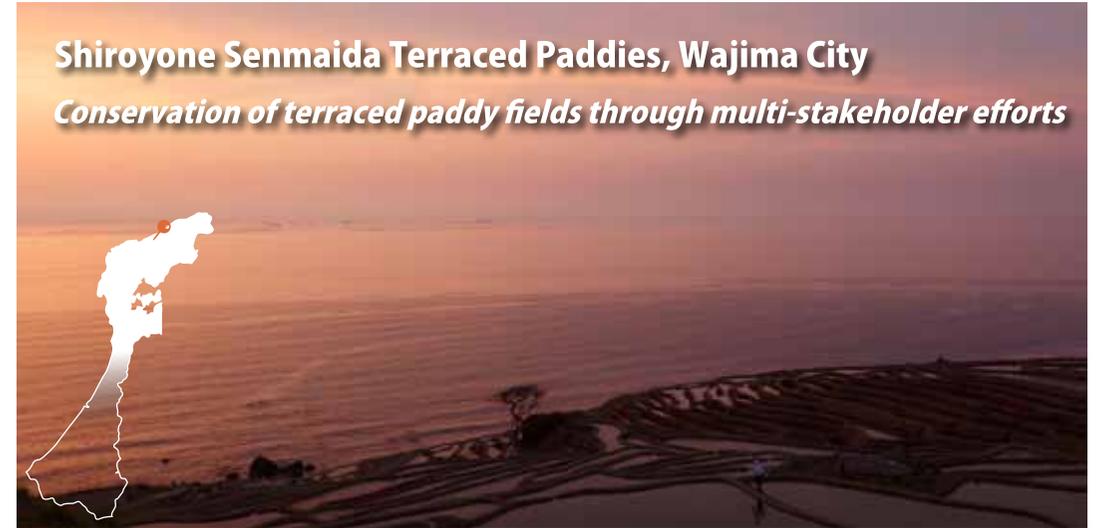
Tada said he is happy with the new progress towards rural tourism development by the Shunran-no-Sato group, and that he considers the living and productive agricultural landscape of Shunran-no-Sato as a valuable tourist resource for the local economy. About three years ago, three young people in their 20s returned to the village, and a couple in their 40s moved into the same area. The inclusion of these five young people lowered the average age of the local population and helped the Shunran-no-Sato area from being listed as a marginal village. In Japan, a marginal village is defined as one in danger of disappearing with a rapid population decline, and with half of the population above the age of 65.

Tada not only wishes to provide a relaxing space and authentic rural experience for local tourism, he also continues to teach about traditional lifestyles, customs and local culture. He wants people to take a long rest here during their spring vacation, and he often joins other community members in helping young people and even people from outside the area to settle down in the village. Tada is thinking of hiring a new person to help with handling food services at his farm inn due to the growing business, but he is hesitating slightly in deciding whether to hire an older local housewife or a young helper from outside the community.

Regarding how this rural development project in Shunran-no-Sato will connect with the Noto region's recent designation as a GIAHS site, Tada hopes that Noto Peninsula can develop an integrated rural tourism strategy. Since a wide area including four cities and four towns in Noto Peninsula has been designated as a GIAHS site for dynamic conservation of traditional agricultural resources, Tada hopes that the eight administrative bodies can work together and undertake efforts to preserve the vernacular architecture. He suggested, for example, that the administration could subsidize half of the repair expenditures for traditional houses. Tada considers the GIAHS designation as a big opportunity to catch the attention of the international tourism market, particularly from the East Asian region. He also expressed his wish that the administration could support tourism promotion, both domestically and abroad.

These sorts of moving efforts and endeavours by the Shunran-no-Sato community group to enforce interactions between rural and urban areas, and to get the younger generation to return to their hometowns made the group a finalist for the BBC World Challenge Project in 2011. At CBD COP 10 in Nagoya, the *Satoyama* Initiative was adopted and recognized as a useful tool to better understand and support human-influenced natural environments for the benefit of biodiversity and human well-being. Delegates from the 18 countries who attended CBD COP 10 were invited on a field trip to Noto Peninsula and Shunran-no-Sato was ranked first among all the places that the representatives had visited on the field trip. Of the 52 delegates, 34 mentioned that it was the best place that they had visited on the Noto Peninsula. Thus, Shunran-no-Sato is an example of community-based innovation regenerating the

Landscape and Natural Resource Management



Shiroyone Senmaida Terraced Paddies, Wajima City

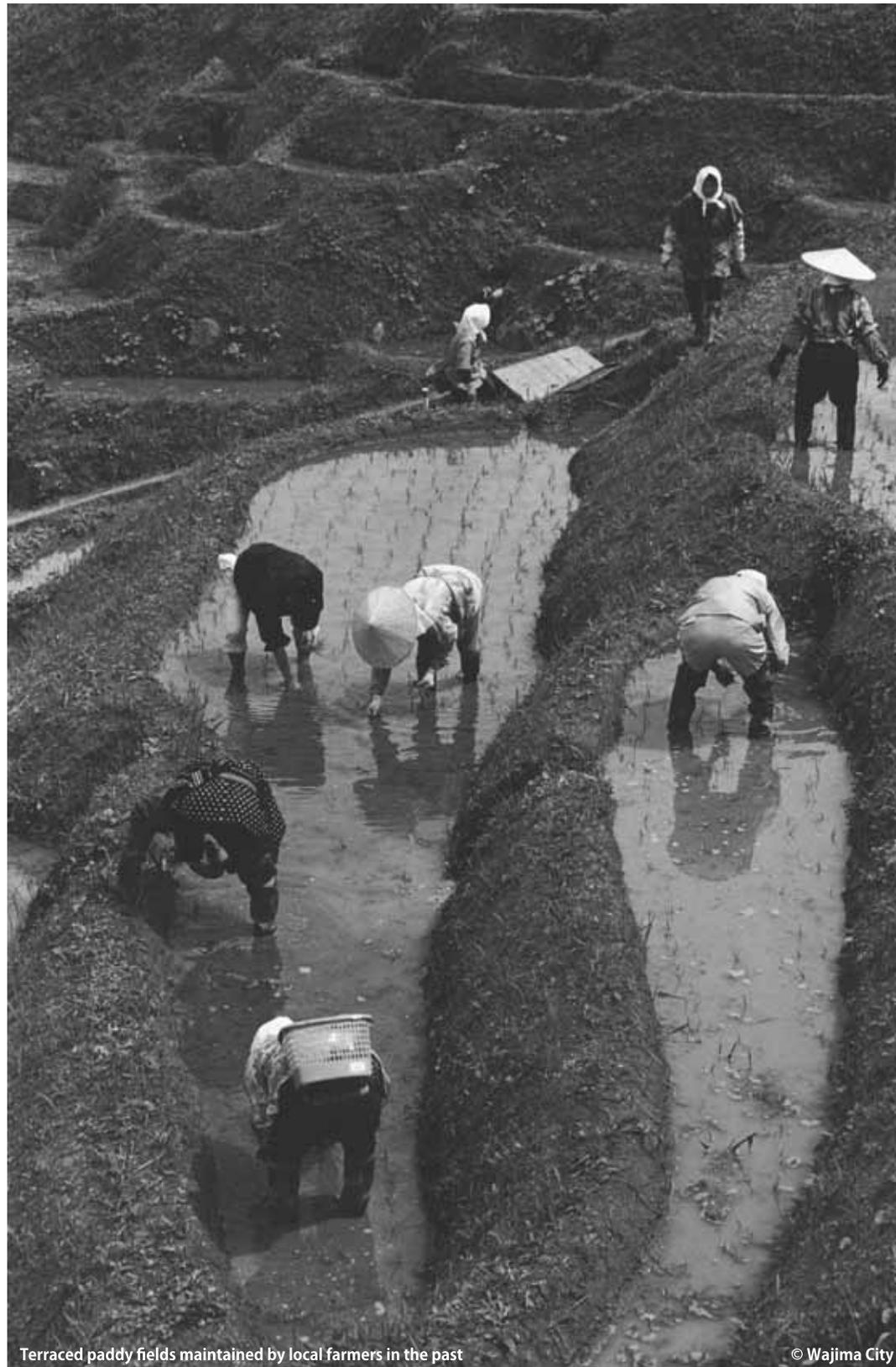
Conservation of terraced paddy fields through multi-stakeholder efforts

The Shiroyone Senmaida Terraced Paddy Fields are located on the western coast of Noto Peninsula and belong to the Najimi District of Wajima City. *Senmaida* means a thousand pieces of field in Japanese, and as its name suggests, Shiroyone Senmaida is made up of over 1,000 small pieces of fields sprawled over the steep hill slope extending towards the Sea of Japan. Shiroyone Senmaida distinguishes itself as one of the most well-known senmaida in Japan due to its remarkable and splendid landscape including the heterogeneous shape of its terraces. The land has been hand-farmed for centuries and houses numerous species of flora and fauna, including endangered species.

Rice has been one of the most important crops in the history of Asian countries. The earliest cultivation of paddy fields in Japan dates back to the early Yayoi period, an Iron-Age era in the history of Japan that dates from 300 BC to 300 AD. Rice farming in Japan has been conducted on the slanted paddy fields in valleys between hills, which are suitable for rice cultivation as the slopes allow for efficient irrigation of the rice fields. It was not until the 17th century that new irrigation methods made it possible to farm rice on the broad plains. Hence, terraced paddy landscapes are not only a prevalent agricultural landscape in Japan's mountainous areas, but also of significant importance in terms of cultural heritage due to their long history. Agricultural management practices over the millennia have created and maintained such specific landscape elements and sustained rich biodiversity.

Some of the most important contributions of terraced paddy fields are the conservation of environmental and local traditional cultures, as well as their educational and recreational roles. The ecological significance of paddy fields includes their functions for flood mitigation, fostering water resources, preventing soil erosion, purifying water, cooling air temperature, cleaning the atmosphere and recreational values. Functioning as wetlands, terraced paddy fields also provide habitats for a diverse array of living organisms, including some endangered species. The resilient paddy fields will also help to counteract the impacts of climate change by regulating the local micro-climate.

Terraced paddy fields are a representative cultural landscape of Japan, and Shiroyone Senmaida has been conserved by the local government for its scenic landscape since the 1970s. As a distinctive coastal paddy terrace, Shiroyone Senmaida was selected as one of the "One Hundred Most Beautiful Terraced Fields" in Japan in 1999. It was highly evaluated for its outstanding landscape consisting of extremely small parcels of cultivated land at a very steep slope along the coast. It was designated as a prominent National Cultural Properties in 2001. In Japan, a cultural landscape is defined as an area formed by the customs of that region, reflecting the local people's lives and livelihoods, and indispensable for understanding the local life and livelihood of a region.



Terraced paddy fields maintained by local farmers in the past

© Wajima City



Shiroyone Senmaida Terraced Paddy Fields maintained by volunteers

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According to Wajima City, the conservation of Shiroyone Senmaida is facing the challenges of land abandonment due to aging and the continuing decrease in the number of local farmers. There were only three households in Shiroyone Senmaida in August 2011, which collectively cultivated a total of 396 parcels of paddy fields. The average age of the farmers was 73 years old. Each parcel of land is extremely small, averaging just 18-20 square metres. The conservation structure of Shiroyone Senmaida, which includes financial support from governmental subsidies, an “owner system”, and labour supported by conservationist volunteers, has succeeded in promoting the location as a popular tourist destination. Shiroyone Senmaida has a total of 1,004 parcels of terraced paddy fields, accounting for 40,051 square metres. A group of local farmers, Wajima City, JA Ōzora, the owner system, and a sake brewing company are taking care of 396, 130, 121, 265, and 7 parcels, respectively. Of the remaining parcels, 49 were abolished and 36 were transformed into dry fields.

At the end of the 1960s, rice production exceeded demand. Thus, the state had to ask farmers to convert parts of their rice paddy fields to other crops in the 1970s. Terraced paddy fields were among the first paddy fields to be abandoned due to low productivity and the difficulty of using machines. Ishikawa Prefecture and Wajima City paid the subsidy for cultivating the parcels of fields below National Route 249 to conserve the Shiroyone landscape. In order to secure the conservation subsidy, Ishikawa Prefecture, Wajima City and some local enterprises jointly established the Senmaida Landscape Conservation Foundation (*Senmaida keisho hozon kikin*) in 1993. A total of JPY 80 million was collected, and interest from the capital of up to about JPY 2.35 million per year has been used to subsidize the Shiroyone Senmaida landscape conservation. It was expected that the investment profit from the foundation would be enough for conservation activities. However, due to the low investment return, Wajima City has paid a large portion of the conservation costs until today. As a result, the conservation of these terraced paddy fields is very challenging due to the shortage of conservation funds.

Direct payment to the hilly and mountainous areas, which was started in 2000 by the Ministry of Agriculture, Forestry and Fisheries (MAFF), was the first direct payment system in Japan. Farm owners in Shiroyone Senmaida applied for direct payment during the first two phases: the five-year periods of 2000-2004 and 2005-2009. Direct payments during the second phase equaled about JPY 300,000 per year and JPY 1.5 million per five years. The conservation fund was supplemented by the introduction of an owner system in 2007. From the total fund of JPY 5.96 million, municipal subsidies, membership fees collected from owner system participants, the Senmaida Landscape Conservation Foundation investment returns, and corporate donations accounted for 53.9 percent, 22.6 percent, 12.7 percent and 11.2 percent, respectively.



The owner system of Shiroyone Senmaida started in 2007, and is a conservation initiative to encourage urban residents to participate in paddy field conservation and to experience farming activities. A popular and innovative project in Japan, it involves urban residents — in particular, those from major metropolitan areas — to become owners of paddy fields in Shiroyone Senmaida by paying an annual fee of JPY 10,000 to JPY 20,000. Only owners who pay a membership fee of JPY 20,000 are allocated a plot of paddy field. Owners are encouraged to participate in rice cultivation activities, including the process of planting, removing field weeds, and harvesting the rice. At the end of the year, around 10 kilogrammes of rice and a certain amount of processed edible wild plants are sent to each owner who paid a membership fee of JPY 20,000, and 5 kilogrammes are sent to those who paid JPY 10,000. However, since each piece of land is extremely small with an average area of 18-20 square metres, it is usually impossible to harvest 10 kilogrammes of rice from it. Thus, the harvest that an owner receives is, in fact, more than what the allocated piece of land could produce.

The owners can also participate in activities such as rice planting and harvesting under the instruction of “*Aikoukai*”, the local conservation organization, which was set up by local residents in 2006 to instruct the owner system members, who are usually urban residents, and who only visit the rural areas a few times each year to experience traditional farming practices. There are four committee members and close to thirty associate members in *Aikoukai*, almost all of whom are from the local communities of Najimi District. Besides delivering instructions regarding cultivation, the members of *Aikoukai* are also in charge of daily field management, which is labour intensive due to the difficulty of machinery use.

Volunteers also play an important role in cultivation activities and supplement the declining labour force of Shiroyone Senmaida. Voluntary cultivation activities started in 1993, with the majority of volunteers coming from small businesses, corporations and schools in Wajima City and from across Ishikawa Prefecture. For a whole decade between 1982 and 1992, high school students from Aichi Prefecture chose Shiroyone Senmaida as their study tour destination and participated in the annual weed-mowing activities. Other volunteers also include employees from Wajima City Municipal Office, who started their voluntary work in 1990. After 1992, a wide range of volunteers of public officers from the Prefecture, employees from regional branches of Hokkoku Bank, high school students, and some families from the urban areas also participated in the Shiroyone Senmaida conservation activities.

Despite the conservation challenges, Shiroyone Senmaida is unarguably one of the most outstanding tourist attractions among the other terraced paddy fields in Japan. The Tourism Division of Wajima City estimated that around 400,000 tourists visited Shiroyone Senmaida in 2010. The tourist number increased dramatically after the designation as a GIAHS site in 2011. Wajima City has also been gearing up to actively



promote Shiroyone Senmaida to the international community. One such example has been the annual installation of LED lights on Shiroyone Senmaida since 2011 to attract tourists in winter. In the winter of 2012, a record-breaking number of around 20,000 bright pink LEDs were lined along the ridges of tiers of fields to illuminate them at night. The vibrant lighting colored by LEDs provided a sharp contrast with the dormant land, which was mostly covered with white snow in winter. This LED installation is drawing further global attention to this significant traditional agricultural landscape.

The terraced paddy fields are conserved as an important avenue for interactions between local communities and urban residents. The head of the *Aikoukai* local conservation organization, Sukenoshin Domae shared: “To continue rice production in Senmaida is not only for the purpose of scenic landscapes; terraced paddy fields serve as outstanding sites for interaction and communication with urban residents”.

In summary, the conservation of Shiroyone Senmaida has involved many stakeholders, including local farmers, urban citizens, private enterprises, and administrative bodies. Conservation activities have included farming knowledge, as well as related agricultural traditions. Without the substantial financial support of Ishikawa Prefecture, Wajima City and other economic entities, the tendency towards degradation of terraced paddy fields in the remote areas could not have been reversed. Domae also expressed his dream of revitalizing the entire Najimi District by taking advantage of Shiroyone Senmaida as a well-known tourist attraction. He is planning to brand the rice produced from the rice terraces across Najimi District to fetch premium prices and restore the abandoned paddy fields. Locally produced vegetables and edible wild plants will be processed to be sold to tourists.

Bixia Chen (UNU-IAS OUIK)



Water is an essential resource for *satoyama* sustainability, as it nourishes the land, and sustains its biodiversity. Water is accumulated from seasonal precipitation and from the melting of snow from the mountain areas. Flowing water runs down towards the Sea of Japan, watering forests, feeding marshes, and filling lakes and ponds along the way.

One of the wetlands, which is strongly connected with *satoyama*, is a basin called Katano-Kamoike, located in Katano Town, which is five kilometres north-west of the centre of Kaga City and about one kilometre inland from the Sea of Japan. It consists of a 2.5 hectares freshwater pond (which reaches a depth of 2.5 metres), and 7.5 hectares of surrounding marshland including paddy fields and reed beds. About 10,000 years ago, wind and soil erosion created a new valley due to a lowering in the level of the Sea of Japan. Then 1,000 years ago, a new plain was formed on the eroded valley by accumulated sand and gravel. 500 years later, the valley was filled with sand dunes that formed along the Sea of Japan, and the accumulated water created the pond.

The Katano-Kamoike site is bordered by hills reaching 30-50 metres in elevation covered with forests, predominantly Japanese red pine (*Pinus densiflora*) and oak (*Quercus serrata*). The area, however, is also dotted with broad-leaved evergreen trees such as *tabunoki* (*Machilus thunbergii*) and Japanese chinquapin (*Castanopsis cuspidate*). Native plants including water chestnut (*Trapa japonica*), and water lily (*Nuphar japonicum*) grow abundantly in the freshwater pond. Manchurian wild rice (*Zizania latifolia*) and common reed (*Phragmites communis*) also grow in abundance in the places where rice was cultivated in the past.

“Katano” is the name of the Town and “Kamoike” means “duck pond”. According to the name, the area has been especially important as a wintering and stopover site for more than 10,000 birds of the *Anatidae* family, including the wild duck (*Anas platyrhynchos*) and Baikal teal (*Anas Formosa*). Annually, about 190 species of birds fly to the pond, and some of these have been designated as national rare wild species. The entire wetland was designated as a special prefectural wildlife protection area in 1968, and the Kamoike Observation Center was established in 1984 by the Kaga City Municipal Office. In 1993, the lake was designated as a Ramsar wetland, and is considered to be the smallest rare wetland in the world. Its rarity was evaluated based on two reasons: first, because many kind of wild birds use this pond as a resting place during the winter, and second, because of the harmonious coexistence of these birds with people for more than 300 years. The territory surrounding the wetland is made up of both national government and privately-owned forests, of which approximately 100 hectares have been designated as hunting grounds and farming fields.



For many years, the locals have learned to manually manage the water level of the pond by digging fresh water channels from the hills of the Shimofukuda reservoir. The pond’s water is managed by hunters, local farmers, and the City Government, and the pond has been used as a reservoir to irrigate surrounding farmlands. During the Edo period, people from Daishoji (a town, which was a feudal domain under Maeda Clan rule) dug the ditches and started to use part of the dried up ground from the pond as paddy fields in spring. However, these paddy fields disappeared in the 1980s, as it was impossible to use machines in the marshy areas, and the owners had grown too old to continue manual rice cultivation. Nowadays, the nearby surrounding areas outside the pond are still used by the farmers, and water from the pond is distributed to the fields in early spring. After the rice harvest, irrigation is stopped to allow the pond to be replenished, thus providing a good roosting area for migratory winter birds. The water quality is examined twice a year by the Wild Bird Society of Japan to maintain sustainable conditions for birds and farmers.

Hiroko Okamoto is a chief ranger of the Wild Bird Society of Japan at Kamoike Sanctuary and is also doing research on the relationship between the population of migratory birds and the surrounding environment and wetland habitat. She has recently reported on the dramatic decrease in migratory birds coming to the pond over the past 20 years. According to her findings, the annual number of ducks was about 15,000 birds in 1990, but by 2011 the number had decreased to less than 3,000 birds. Okamoto shared that ducks usually rest in the pond during the daytime and leave for the rice paddies in the evening for feeding. In the past, the paddy fields were flooded with water all year round, and in the winter, it was a good feeding ground for ducks to eat the soft grass and rice grains that remained after the harvest. However, farmers stopped flooding the paddy fields during the winter season, as it was impossible to use the machines for farming on wet ground. This resulted in a significant decrease in the number of migratory birds coming to the pond, as it was hard for ducks to eat unpolished rice in the paddies without water.

To attract migratory birds to Katano-Kamoike, in 1996 farmers started an experiment to fill the neighboring fields with water and to spread rice bait. This practice is called “*fuyumizu-tambo*”, which literally means “flooded paddy fields in winter”. Takashi Sugimoto, a 71-year-old farmer, is the oldest person in Katano Town who has been practicing this *fuyumizu-tambo* since 2006. He owns 12 hectares of rice fields, and works together with two other farmers, whose total area of rice fields covers more than 20 hectares. In the past, about 20 farmers practiced winter flooding, but many of them have now left farming. The main reason that they quit farming is due to the hilly landscape, which makes it difficult to use machines for field management. Before becoming a farmer, Sugimoto was an office worker, and after retirement, he decided to devote his life to nature conservation of the Katano area. He said that if they lose the fields, the ecosystem of Katano Town would then be destroyed and so he created a team for Kamoike conservation. Together, they regularly visit the Kamoike sanctuary to acquire knowledge about the area’s biodiversity and ecosystem.



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Recently, Okamoto started to do research on Sugimoto's winter rice fields to estimate the number of resting ducks. During the night time, she would visit his fields about ten times, during which she recorded more than 300 birds in total. She found a significant increase in the number of birds resting in winter fields and published the data in the yearly journal for the Wild Bird Society of Japan.

Sugimoto also emphasized that about 20 years ago, the droppings of migratory birds functioned like organic fertilizer, and farmers did not have to use chemical herbicides for soil fertilization. The special rice cultivated in this way was branded in 2001 and called "Kaga-no-kamomai, tomoe", and this cultivation is still widely practiced in Kaga City. However, according to Sugimoto, it is very hard to keep the birds in the field, as the cost of winter flooding is very high and he has to spread the food for the birds every three days. While farmers could irrigate their paddy fields with the pond water from Katano-Kamoike, they themselves would have to cover the expense for the water used in winter flooding. He consulted with the Kaga City Municipal Office on the cost of winter flooding, and a trial using rainwater will begin next year, as the Hokuriku area enjoys high levels of rainfall. In his opinion, the only way to preserve these landscapes for birds and for sustainable agricultural activities is to establish corporatized farming; that is, employing farmers on fixed monthly salaries to ensure stable income so as to attract more young people into farming. As the farmers grow older and the younger generation remains unwilling to continue the farming activities, there should be some income incentives that would drive people to continue farming in a sustainable manner.

Local communities promoting the pond's conservation are also supported by volunteer groups and other institutions like Katano-Kamoike Observation Center, the Wild Bird Society of Japan and the Kaga City Municipal Office. The pond's water level decreases due to supplying the farming areas for rice cultivation in summer, and weeds start to grow abundantly around the pond where there is no water. As mentioned earlier, the ground around the pond is very marshy and it is hard to use any machines, and therefore weeds have to be pulled by hand. Since 2010, the Wild Bird Society of Japan has had a volunteer work project called "Green Holiday". About 40 volunteers take part in every such activity, with about half of the volunteers being local bird hunters, while the rest are villagers and volunteers from different prefectures. In addition, the Katano-Kamoike Observation Center also organizes many activities involving local people for public awareness, and environmental and conservation education. Some of these activities include biodiversity and ecosystem education for children and the provisioning of bird-watching facilities throughout the year. From 2004, the Wild Bird Society of Japan together with the Kaga City Municipal Office, hunters and local farmers created the "Convention for Conservation of Ecosystem in Katano-Kamoike's Surrounding Area". The main result of this convention was to provide the neighboring fields with a weekly supply of water. Thanks to these sorts of collaborations, by 2011 the area practicing



Baikal teal (*Anas formosa*)

© Wild Bird Society of Japan

fuyumizu-tambo had increased to 20 hectares, and there are hopes to further increase the area to 900 hectares.

The local people in the *satoyama* area of Katano Town believe that the Katano-Kamoike pond only exists because they have made wise use of its natural resources through sustainable farming, hunting and later, tourism. Farmers, hunters and local villagers are determined to keep this invaluable ecosystem, as this wetland is directly linked with their way of life and the pride that was built up by their ancestors over 300 years. It goes without saying that the pond's sustainable future will depend on how humans will decide to continue managing the pond and what impacts their activities will have on its ecosystem and biodiversity.

Aida Mammadova (UNU-IAS OUIK)



Life in Harmony with Nature

The spirit of *satoyama* and *satoumi* is a central part of the lives of the people of Ishikawa. Regardless whether one is living in a rural area or has moved to an urban one, *satoyama* and *satoumi* have always been a place of longing close to people's hearts, where the soul finds its true self once again. The stories contained here are testimonials of the people of Ishikawa, young and old, natives and new residents, determined to conserve their homes, traditions, livelihoods, identity and the nature around them.

In essence, the conservation of *satoyama* and *satoumi* is about restoring the ecosystem services that were once provided, but which have been disrupted due to humans abandoning their maintenance. *Satoyama* and *satoumi* are, after all, examples of secondary nature, which can only stay healthy and biologically productive if sustained through continual human interventions. But this encompasses more than just restoring the ecological system or natural landscapes, it is also about ensuring continued inheritance of indigenous knowledge, traditions and culture, reviving local pride and a sense of belonging, enhancing the vitality of local communities and drawing public interest to the rural areas.

However, in a world of rapid demographic change and technological advents coupled with increasing global climatic pressures, conservation of the present state alone is no longer sufficient; there is an urgent need to pre-empt potential future trends and the impacts of associated change. The resiliency of a system — its ability and flexibility to respond and adapt to changes — needs to be enhanced in the economic, social and ecological dimensions. To achieve a resilient and sustainable *satoyama-satoumi* system, a “new commons” approach is required, taking a community-wide and multi-stakeholders effort to pull together actions and resources for the collective management of natural endowments. Furthermore, innovative collaboration spanning different sectors and industries should be encouraged, or a “total sixth industry approach”, in which local industries are integrated towards unconventional joint business approaches, not only for cost efficiency, but also to enhance product branding through added value and eventually contributing to economic resiliency as a whole.

Nonetheless, government support is also essential for backing communal efforts. An example of local government support is the Noto Rice certification scheme, a joint initiative established by a group of seven local JAs (Japan Agricultural Cooperatives) in Noto and supported by the Ishikawa Prefectural Government. Established with the aim of building a brand name for rice cultivated with reduced chemical inputs, which nurtures biodiversity in Noto, the Noto Rice certification scheme is set to promote an approximately 30 percent reduction in chemical inputs for all *koshihikari* rice cultivation areas, which account for 60 percent of the total paddy fields in Noto. Farmers who meet this target of a 30 percent chemical input reduction can have their rice certified and marketed as “Noto Rice”. Since implementation

started on 1 December 2012, the initiative has seen an impressive participation by 1,000 local farmers, most of whom were previously hesitant about attempting to reduce chemical inputs, but who are now determined to embark on this venture to produce rice with lower levels of chemical input to re-brand their product while taking moderate steps to conserve the environment of their *satoyama*. The *Satoyama* Creation Fund, which subsidizes some of the efforts in the stories mentioned earlier, is another example whereby public funding from the Ishikawa Prefectural Government is provided to private businesses, NPOs, organizations and academic institutions in support of their activities to conserve *satoyama* and *satoumi*. Although these sorts of initiatives are taking gradual and modest steps, they paint a hopeful future for *satoyama* and *satoumi* conservation in Ishikawa.

As the younger generation will eventually be the future owners who inherit the *satoyama* and *satoumi*, the people of Ishikawa recognize that it is also important to nurture a love for nature and one's hometown from an early age in their children, and to educate them regarding the skills they will need to play a part in the conservation of their communities. Ongoing public awareness and educational efforts include the creation of a “MISIA Forest” in Tsubata Town in 2011 for education on biodiversity conservation of forests and *satoyama* in name of MISIA, famous Japanese singer-songwriter and United Nations Honorary Ambassador for CBD COP 10; the *Satoyama Hakkentai* (*Satoyama* Exploration Team) established by the *Satoyama* Creation Office of Ishikawa Prefecture and run by local university students to organize educational activities for children and provide hands-on experiences with *satoyama* conservation; and the *Satoyama* Meister Training Programme introduced in 2007 by Kanazawa University to nurture specialized young professionals with the aim of preparing the students to start up agriculture, forestry, fishery and related businesses within the Noto area and become forerunners in the promotion of sustainable agriculture.

The *satoyama-satoumi* system of Ishikawa is, in fact, a globally acclaimed concept. For instance, Noto Peninsula was designated as a Globally Important Agricultural Heritage Systems (GIAHS) site in June 2011 for its integrated *satoyama* and *satoumi* system, and was highly appraised for its outstanding agricultural functions in securing food and livelihoods, conserving biodiversity and ecosystems, applying traditional knowledge and adapted technologies, promoting cultures, values and social integrity, and maintaining remarkable landscapes, land and water resources management features. Nonetheless, *satoyama* and *satoumi* are not unique to Japan; countries and communities, which share similar rural landscapes, regardless of the stage of development, will be able to relate to Japan's experience and apply the lessons of *satoyama* and *satoumi*, and work together toward a better future of people living in harmony with nature.

Evonne Yiu (UNU-ISP)

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Interviewees

- (1) Sukenoshin DOMAE, Shiroyone Senmaida Aikoukai, Wajima City
- (2) Tsuki HAGINO, Mii Elementary School Student, Wajima City
- (3) Yuki HAGINO, Maruyama Community, Wajima City
- (4) Yuuka KOSUGI, Director, G-VOICE Company, Hakusan City
- (5) Kazuhiro MASUDA, Natural Cultivation Farmer, Hakui City
- (6) Miyoji MATSUI, Owner of Mansaku-no-Yado, Shunran-no-Sato, Noto Town
- (7) Ryo MATSUSHITA, President, Matsushita Shubyo-ten, Kanazawa City
- (8) Saichi NISHI, Farmer of *Kinjiso* (Okinawan spinach), Kanazawa City
- (9) Isao NISHINO, Farmer of *Utsugi Akagawa Amaguri Kabocha* (pumpkin), Kanazawa City
- (10) Hiroko OKAMOTO, Chief Ranger, Katano-Kamoike Observation Center, Kaga City
- (11) Chouchiro ŌNO, Ōno Charcoal Making Plant, Suzu City
- (12) Kinjou SAKASHITA, Sakashita Aquaculture Farm, Nanao City
- (13) Sanae SAKASHITA, Sakashita Aquaculture Farm, Nanao City
- (14) Susumu SAKASHITA, Sakashita Aquaculture Farm, Nanao City
- (15) Hiroyuki SHIN, Noroshi Roadside Station, Suzu City
- (16) Takashi SUGIMOTO, Farmer (on Fuyumizu-tambo), Kaga City
- (17) Kiichiro TADA, Shunran-no-Sato, Noto Town
- (18) Masayoshi TAGAMI, Natural Cultivation Farmer, Hakui City
- (19) Johsen TAKANO, Division of Agriculture, Forestry and Fisheries, Hakui City
- (20) Nagayuki WATARI, Agricultural Management Department, Japan Agricultural Cooperatives (JA) Hakui, Hakui City
- (21) Hiroyuki YAMASHITA, Tourism Division, Exchange Policy Department, Wajima City

Photography

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