Globally Important Agricultural Heritage System

Sawtooth Oak Forests and Irrigation Ponds Connecting the Kunisaki Peninsula Usa Integrated Forestry Agriculture and Fisheries System

In May 2013, Oita Prefecture's Kunisaki Peninsula Usa area (which includes Bungotakada City, Kitsuki City, Usa City, Kunisaki City, Himeshima Village and Hiji Town) was designated as a Globally Important Agricultural Heritage System (GIAHS).

Kunisaki Peninsula Usa Integrated Forestry, Agriculture and Fisheries System

Kunisaki Peninsula Usa GIAHS

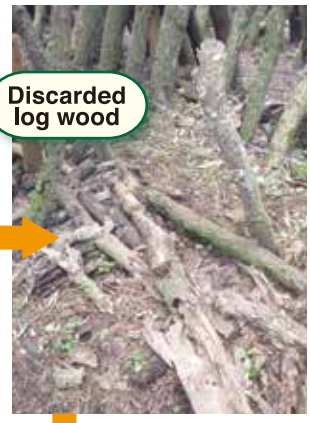
Blessings from the forest: The Shiitake Homeland.

"Trees producing food", contributing to global food security

An agriculture, forestry and fisheries system, including Japan's numb sustainably maintained with the Sawtooth Oak forests and irrigation ponds

An abundance of nature and trade nurtured by the Sawtooth Oak forests

Bright 'Hoda-ba' sites where Shiitake are cultivated are utilized to produce superior quality dried Shiitake



Multiple irrigation ponds interlinking the irrigation water supply system Approximately 1200 irrigation ponds


Oben 'kaki' (persimmon)


Mitori beans


Dried Shiitake


Shichitoui grass

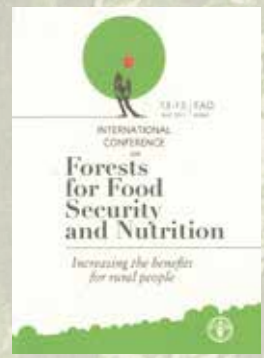
Characteristic agriculture, forestry and

The downfalls of rain in this region soak into the soil piled up with fallen Sawtooth Oak leaves and turns into spring water comprised of organic matter and nutrient salt. As a source of nutrients for phytoplankton and seaweed, this spring water supports the rice paddy agriculture and coastal fishing in addition to nurturing the diverse ecosystem.

*Nutrient salt: general term for silicate, phosphate, nitrate and nitrite etc. which are nutrients for phytoplankton and seaweed

Log wood cultivated Shiitake produced from forest resources

In this area, log wood cultivated Shiitake production using Sawtooth Oak forests is carried out traditionally. Sawtooth Oaks provide the necessary nutritional source for the growth of Shiitake mushrooms and are used to produce log wood cultivated Shiitake food source. The Sawtooth Oak forest resource system that produces this food source is highly regarded by the Food and Agriculture Organization of the United Nations (FAO) because it contributes greatly to the aspects of nutrition and livelihood security in this region of limited arable land. Furthermore, by growing log wood cultivated Shiitake, the logging and regeneration cycle of the Sawtooth Oak forest is repeated and further prompts the renewal of the forests. Together with maintaining public functions of the forests such as recharging the water resources, it is linked to the preservation of the excellent Satoyama (rural area) environment and scenery.



An international conference on Forests for Food Security and Nutrition (FAO)

ber one log wood cultivated Shiitake production,

Middle Ages Manor (Tashibunosho) still exists to this day

In the past, the people of this region had to contend with water shortages therefore they carried out rice paddy agriculture which utilized the natural landscape. The traces of such efforts are told by the "Tashibunosho Osaki Agricultural Landscape" which still exists today almost completely unchanged from the Middle Ages. In the regions around the base of the mountains, the Sawtooth Oak forests are properly managed so that the recharged water resources nurture the rice paddy agriculture and diverse ecosystem. They form the beautiful scenery of the 'Satoyama' areas and farming communities. With origins in the manor remains of the 11th Century, the fact that the fundamental form of the 14th to 15th Century arable land and hamlets has been retained is highly acclaimed, and in 2010 the landscape was designated as an "Important National Cultural Landscape".

The last remaining Shichitoui crop production area in Japan

Shichitoui cultivation does not overlap with the water usage periods and busy, labor intensive periods of the wetland rice cultivation. In the past it was grown widely within the prefecture given the high demand for the durable 'Tatamiomote' sheets that are made from it, but at present Kunisaki City is the sole production area for Shichitoui. Compared with Igusa (soft rush), Shichitoui is hard and has outstanding durability and is used for making tatami mat sheets for Judo halls and traditional cultural assets. It is planted in early May, and then as it grows it is trimmed* and steadied by netting to prevent it from falling over. Approximately 90 days after it is planted, it is harvested in early August by hand using a sickle. The Shichitoui is split lengthways into two strips and then dried out over a period of 10 hours. Finally the strips are woven* into sheets. Shichitoui is a very labor intensive crop.

*Trimming : the grass is trimmed once it is 1.3m high to keep it an even height

*Weaving : Shichitoui is woven to make Tatamiomote sheets

A history of fighting with the "insufficient water"

The succession of a world-class system

- ◎ Log wood Shiitake cultivation utilizing the Sawtooth Oaks
- ◎ Multiple irrigation ponds interlinking the irrigation water supply system
- ◎ Rice paddy farming fostered by the Sawtooth Oak forests
- ◎ A diverse ecosystem nurtured by the Sawtooth Oak forest and interlinked irrigation ponds
- ◎ Farming culture and landscape handed down through generations

The interlinked system of Japan's greatest accumulation of Sawtooth Oak forests and multiple irrigation ponds bears a variety of agriculture, forestry and fishery industries which includes the country's sole Shichitoui production area, in addition to preserving the diverse ecosystem. Based on the Rokugo Manzan culture, many folk events related to farming passed down through generations still exist today.

fishery products and the diverse ecosystem

Vegetation	27 types of vegetation listed on the Ministry of the Environment's Red Data List of Threatened Species are found in this region, including Iwagirisou (Opithandra primuloides).
Fish, crustaceans	48 types of fish and crustaceans found on the Red List of Threatened Species are found in this region. Akaza inhabit the rivers, and Kubohaze and the Kabutogani, which is known as a living fossil, inhabit the mudflats.
Reptiles, amphibians	12 species of reptiles and amphibians listed on the Red List of Threatened Species inhabit this region, including the Oitasanshouuo salamander, which is designated as an endangered species according to the International Union for Conservation of Nature and Natural Resources (IUCN).
Birds	53 species of birds registered on the Red List including the Little Curlew inhabit this region.


Oitasanshouuo Japanese Giant Salamander
(Photographer : Shinichi Sato)


Iwagirisou (Ophithandra primuloides)
(Photographer : Tsuyoshi Oda)


Little Curlew


Akaza (Liobagrus reini)
(Photographer : Kazuo Hoshino)

Farming and food cultures passed down through generations

The Kunisaki Peninsula was once made up of the six hamlets called Musashi, Kunawa, Kunisaki, Tashibu, Aki and Imi, formed along the valleys spreading outward from the Mt. Futago ranges. These six hamlets together were called "Rokugo". The syncretic Shinto and Buddhism "Rokugomanzan culture" in the temples opened by the monks of Kyushu's largest manor, the Usa Hachiman Shrine (a National Treasure) and its associate temple Miroku is known to have blossomed, and the folk customs and food culture associated with farming have been passed down through generations to this very day.

Goshinkosai Festival
(Usa City)

Amabiki Shrine
(Bungotakada City)

Kebesu Festival
(Kunisaki City)

Kitsune-odori (fox dance)
(Himeshima-mura Village)

In the Kunisaki Peninsula Usa area there are many temples of the Tendai Buddhism sect with strong ties to the Usa Hachiman Shrine, and there are many characteristic religious festivals relating to agriculture that are still practiced to this day.

Shujo-onie Festival
(Bungotakada City and Kunisaki City)

This festival is to show gratitude for the harvest of the previous year and to pray for a good harvest in the year ahead. It takes place at Tennenji (Bungotakada City), Iwatoji and Jobutsu (both in Kunisaki City) temples. Giant torches are lit, there is a Buddhist memorial service by monks, and 'Oni' (demon) dances are performed.

Doburoku Festival
(Kitsuki City)

This is a festival at Shirahigetahara Shrine, where thanks is given to rice harvests. At this festival rice wine called 'Doboroku' made by parishioners is offered to the guardian deity of the shrine. It is said to have been passed down as a parishioner focused religious organization and event. The practice began in 710, and has been carried on for over 1300 years.

*Hamlet : ancient unit for measuring local administrations *Manor : land ownership system of lords and temples from the Nara Period to the Sengoku Period.
*Syncretization of Shinto and Buddhism : The harmonious fusion of Shinto and Buddhism

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There are many local dishes here that utilize seasonal agriculture, forestry and fishery produce caught and harvested in the area. This local cuisine is offered at each household and restaurant run by local residents. A group of local women is not only carrying on the tradition of the local dishes, but is also developing new meals using local produce. They are endeavoring to revitalize the region through the succession of regional culture and interaction with large cities.

Dango dumpling soup
(all regions)

This soup contains seasonal vegetables and long, stretched out Dango dumplings made with wheat flour, and is seasoned with miso. It is a local dish representative of Oita Prefecture and has been a fond meal for many people from times when rice was scarce.

Mitori-okowa rice dish
(all regions)

The Mitori bean is part of the pea family of plants and is a type of black eyed pea. Compared to the Adzuki bean, the Mitori bean is darker and does not break apart when cooked. It is eaten as a substitute for Adzuki beans at Buddhist memorial services and feasts at festivals.

Taimen
(Himeshima-mura)

This dish is a local specialty served when parents of the bride and groom meet for the first time. The name is a play on the word Taimen, which can mean "meeting or facing" and also Tai "sea bream" and Men "noodles". Sea bream are said to find a partner and not leave its side and long noodles represent the hope of a long relationship between the families.

Shrimp Chirashi Sushi
(Usa City)

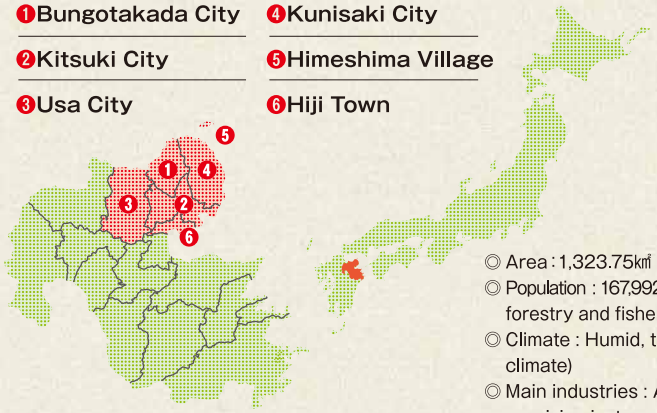
The Katchi shrimp used in this dish are whiskered velvet shrimp caught in the Buzen Sea and boiled then dried. This version of chirashi sushi is made with many local dried foods including shiitake mushrooms and beans. It is commonly made for festivals or when visitors come to the area. It is a local food of the Nagasu area of Usa City.

The deep valleys and ridges extending outward from the Futago mountain system to become the Kunisaki Peninsula

A natural environment that is tough on rice paddy agriculture

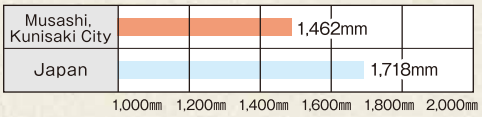
The Kunisaki Peninsula Usa area is situated in northeast Kyushu, south of the Seto Inland Sea. It is formed by four cities and one village, with the round peninsula at their center. The geographical terrain features mountain ridges and deep valleys extending out radially from the Mt. Futago mountain ranges at the centre of the peninsula. Plain lands are narrow and there are many short and steep rivers. Due to its low precipitation and volcanic soil that quickly absorbs any rainfall this region has struggled with the difficulties of securing water since ancient times.

❶Bungotakada City
❷Kitsuki City
❸Usa City
❹Kunisaki City
❺Himeshima Village
❻Hiji Town



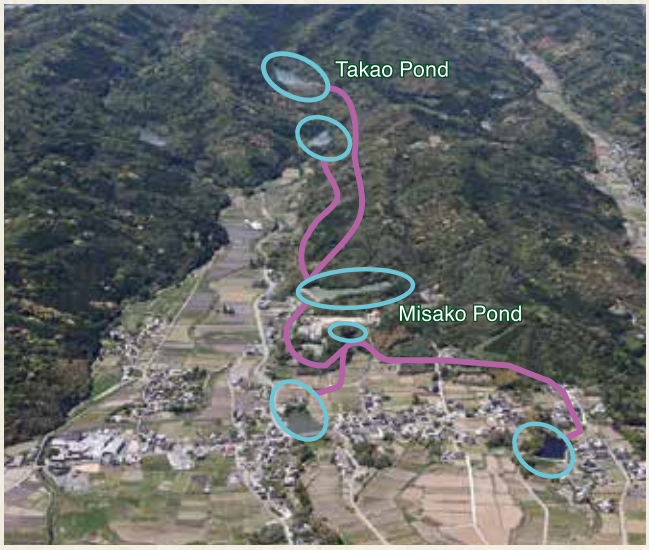
◎ Area : 1,323.75㎢
◎ Population : 167,992. Total of 10,208 people in agriculture, forestry and fisheries (as of March 2015)
◎ Climate : Humid, temperate climate (Seto Inland Sea climate)
◎ Main industries : Agriculture, forestry and fisheries, precision instruments manufacturing

◎Average precipitation comparison



※Musashi, Kunisaki City : Japan Meteorological Agency figures (2003-2010)
Japan : Ministry of Land, Infrastructure, Transport and Tourism (1971-2000)

Irrigation water supply system of multiple interlinked irrigation ponds born from the geographical constraints of the region



The management system of the multiple, interlinked irrigation ponds

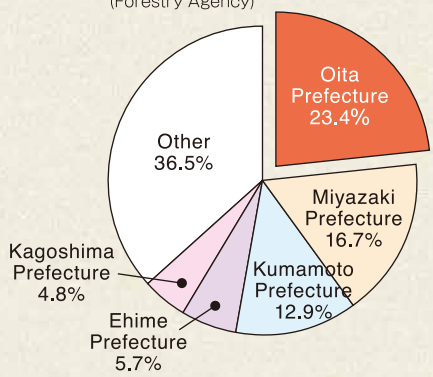
The Tsunai region of Kunisaki City currently uses an interlinked system of six ponds which was established in the Edo Period. Takao pond, which is the furthest upstream pond, is kept for use in the latter period of wet-land rice production. Until then, the three mid-stream ponds and the two downstream ponds are fed into one another and supply the water for production.

On top of stably running rice paddy agriculture, it is estimated that the history of the indispensable irrigation ponds began in the period in the 11th Century when the fields were opened up and crop cultivation began. Most of these were established in accordance with the population increase of the 19th Century. Given that the construction of large scale irrigation ponds was not possible due to the area's geographical conditions our ancestors established the techniques to secure the necessary amount of water using multiple interlinked small scale irrigation ponds. Through this, reciprocally beneficial water supplies were equalized and the precious water was efficiently distributed and the water shortage issue was resolved. In addition by having open waterways between the irrigation ponds, the water catchment area was increased so that more rainfall entered the irrigation ponds and a stable water supply is attained.

Misako Pond (Kunisaki City)
In this region the knowledge and experience needed for continuing the irrigation water supply system is passed down through generations. There is a position called the "Ikemori" (pond manager) who is entrusted with the operations and management of the irrigation ponds. Water withdrawal management is conducted so that rice paddy water rations are equalized and so that water is used effectively and fairly. The fact that this system is maintained and managed for each of the rivers spreading outward from the Mt. Futago ranges is a feature of the rice paddy agriculture of this region.

The Sawtooth Oak circulation system and food production system

■ Quantity of Sawtooth Oak in Japan
※Forest resources (as of Mar 31, 2012)
(Forestry Agency)



Japan's largest Sawtooth Oak forests and their multiple functions

The cumulative total of Sawtooth Oak trees in Oita Prefecture accounts for around 23% of the total nationwide, making it the largest amount in Japan. The proportion of the region's forest area covered by Sawtooth Oak forests is 11.2%, which exceeds the prefectural average of 10.5%. This is due to the geographical characteristics of the area which make the natural environment well suited to Sawtooth Oaks. From this stemmed the active planting of trees in the Satoyama areas for use as Shiitake cultivation log wood as well as wood and charcoal fuel materials so that residents could make a living.

Collection of log wood for Shiitake mushroom production

◎Log wood cross cutting

1-2 months after cutting down the trees, they are trimmed to 1-1.2m in length.

◎Preparing the logs (January to March)

Holes are drilled into the trimmed logs with an electric drill and wood chips containing shiitake fungal filaments are inserted into the holes.

◎Resting period (January to March)

The logs inoculated with Shiitake fungus are left to rest in an area that will allow the fungus to spread. To provide good ventilation and shelter them from direct light, the logs are covered in Sawtooth Oak branches. This is called 'Kasagi'.

◎Relocation to the Hoda-ba

After resting, in the autumn of the second year, the log wood is moved to a location suited to Shiitake sprouting called a 'Hoda-ba' (where log wood cultivated Shiitake are grown). When Shiitake begin to sprout from the log wood, the logs are then called 'Hoda-gi'.

◎Growth and harvesting

Shiitake predominantly sprout in spring and autumn. Once they grow to the appropriate size, they are harvested by lightly twisting the base of the mushroom.

Preservation of Sawtooth Oak forests and the cultivation of log wood cultivated Shiitake

Even when chopped down, the Sawtooth Oak sprouts from the stump and has the fantastic characteristic of being a cyclical source of timber. Through appropriate management, planted Sawtooth Oak forests will grow to the suitable size needed for use in log wood cultivated Shiitake production after around fifteen years. The fully grown Sawtooth Oak trees are cut down in autumn and supply Shiitake production. After the Sawtooth Oak trees are cut down, new shoots sprout from the stump the following spring. In order to ensure the necessary amount of sunlight and nutrients for growth, undergrowth and weeds are trimmed back. The trimmed undergrowth then not only holds back the growth of future undergrowth, but as it slowly decomposes it also assists the growth of the Sawtooth Oaks and provides them with nourishment. Furthermore, the fallen leaves and old logs that have been used for Shiitake cultivation humify and turn into mineral rich soil, forming a soft, swollen water retention layer. Two to three years after sprouting, the stumps are cleared to leave only two to three shoots which accelerates their growth. Before long, around 15 years after being cut down, the Sawtooth Oak trees regrow to a size that allows them to be used as log wood for Shiitake cultivation.

Unique Hoda-ba management for growing log wood cultivated Shiitake

The key points for growing top quality log wood cultivated Shiitake mushrooms are the Hoda-ba that are used, and the water sprinkling. During winter this area receives little rainfall and experiences low temperatures. Therefore in the period when water is needed for Shiitake to sprout, log wood cultivated Shiitake are produced with methods such as using irrigation pond water for water sprinkling. The Hoda-ba here are not in the commonly used cedar coniferous forests, but instead in broad leaf forests called "bright Hoda-ba" where the lighting and temperature can be suitably controlled.

Dried log wood cultivated Shiitake are log wood cultivated Shiitake that have been dried in sunlight or using a drying machine. Depending on their shape, luster and color they are divided into categories such as "Donko", "Koko" and "Koshin". In this region, valuable, high quality dried log wood cultivated Shiitake such as the "Chabadonko" and "Koko" varieties can be grown using superior cultivation techniques. Oita Prefecture holds many shining accolades for its Shiitake and has been awarded the prestigious Grand Prize at the National Dried Shiitake Competition 19 years in a row, and has won a total of 51 times (as of 2017).

■ Dried Shiitake Mushroom Production Volume
＊2012 Specific Forestry Products Basic Data (Forestry Agency)

1st Oita Prefecture Production ···**1,144t(42% share)**
2nd Miyazaki Prefecture Production ····· 524t(19% share)
3rd Kumamoto Prefecture Production ····· 205t(7% share)

Donko

These Shiitake grow slowly in the cold climate from late winter to early spring. The edges are thickly rolled inward, the cap is very thick and the entire mushroom is very rounded.

Koko

These Shiitake grow in early to mid-spring. They are thicker and larger than the Donko and are both flavorsome and aromatic.

Koshin

These Shiitake grow from mid to late spring and are harvested once the cap is 70% open. The cap is thin and the mushrooms have a flat shape.

Agriculture, forestry and fishery produce brimming with regional characteristics

This area didn't partake in large-scale rice paddy farming so in order to maintain their livelihood residents needed to cultivate a crop that complemented wetland rice. In the past, many farming households combined rice paddy farming with log wood cultivated Shiitake production, but these days there are many commodities being produced such as beef, Welsh onions, small Welsh onions, and greenhouse-grown Mikan fruit. There are many characteristic products, and in particular the Shichitoui crop production area in Kunisaki City is the only production region in the country. In addition to this, there are a variety of agriculture, forestry and fishery industries developing in Oita Prefecture such as the Oita Prefecture specialty Kabosu lime, and the indigenous species such as Mitori beans and Oben persimmons that have taken root in this region.


Dried log wood cultivated Shiitake


Kabosu limes


Greenhouse-grown Mikan


Grapes


Tea


Strawberries


Small Welsh onions


Welsh onions


Wheel chrysanthemum


Tsuyahime rice


Shichitoui


Pond loach


Gazami crab


Oita Bungo Beef


Shiroshita karei (flatfish)


Japanese tiger prawn


Bungo Beppu Bay Chirimen fish


Japanese oyster


Cutlass fish

What are Globally Important Agricultural Heritage Systems (GIAHS)?

The Food and Agriculture Organization of the United Nations (FAO) began this project in 2002 as a global system aiming for the stable securement of food. Future generations must learn the traditional agriculture and farming methods, the culture that has developed through them, the landscape, and the biodiversity as all these come together and this project is an attempt at preserving and continuing to make the most of this designated globally important agriculture system (includes forestry and fisheries).

◎For more details

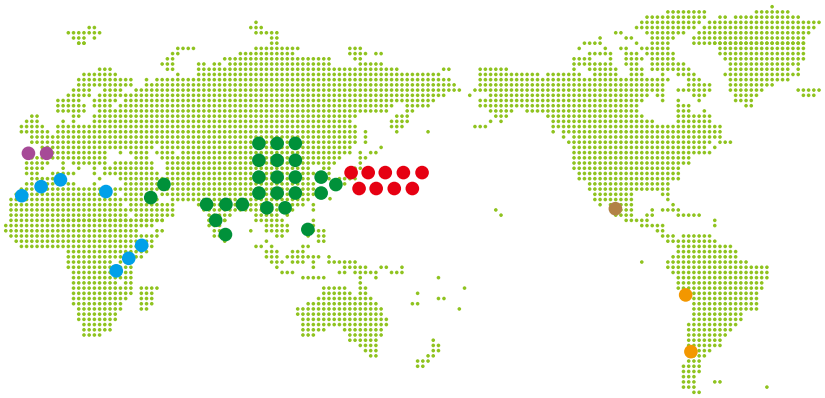
http://www.fao.or.jp/fileadmin/contents/publications/pub_GIAHS.pdf

How are they different from UNESCO World Heritage (Cultural Heritage) Sites?

UNESCO World Heritage (Cultural Heritage) Sites are registered and protected "land property" such as historical ruins and historical structures, whereas GIAHS recognizes traditional agricultural systems which should be passed down to future generations, with the goals of preservation and sustainable utilization.

◎Updates available on Facebook

GIAHS Kunisaki Peninsula Usa Region GIAHS OITA Search



47 certified GIAHS in the world (as of Feb 2018)

9 sites in Japan
- Noto's Satoyama and Satoumi(Ishikawa Prefecture)
- Sado's Satoyama in Harmony with Japanese Crested ibis(Nigata Prefecture)
- Traditional Tea-grass Integrated System in Shizuoka (Shizuoka Prefecture)
- Managing Aso Grasslands for Sustainable Agriculture(Kumamoto Prefecture)
- Kunisaki Peninsula Usa Integrated Forestry, Agriculture and Fisheries System(Oita Prefecture)
- Osaki Kodo's traditional water management system for sustainable paddy agriculture(Miyagi Prefecture)

Asia (not including Japan) / 25sites
- China (Aohan Dryland Farming System) (Dong' s Rice Fish Duck System) (Hani Rice Terraces)(Wannian Traditional Rice Culture) (Pu' er Traditional Tea Agrosystem) (Rice Fish Culture) (Kuajishan Ancient Chinese Torreya) (Urban Agricultural Heritage-Xuanhua Grape Garden) (Jiaxian Traditional Chinese Date Gardens) (Xinghua Duotian Agrosystem) (Fuzhou Jasmine and Tea Culture System) (Zhejiang Huzhou Mulberry-dyke & Fish-pond System) (Traditional Mulberry System in Xiajin's Ancient Yellow River Course) (Rice Terraces in Southern Mountainous and Hilly Areas, China)
- India (Koraput Traditional Agriculture)(Saffron Heritage of Kashmir)(Kuttanad Below Sea Level Farming System)
- Republic of Korea (Traditional Gudeuljang Irrigated Rice Terraces in Cheongsando)(Jeju Batdam Agricultural System) (Traditional Hadong Tea Agrosystem in Hwagae-myeon)
- Philippines (Ifgao Rice Terraces)
- Iran (Qanat Irrigated Agricultural Heritage Systems, Kashan)
- Sri lanka(The Cascaded Tank-Village System in the Dry Zone of Sri Lanka)

Africa / 7 sites
- Algeria (Ghout System(Oases of the Maghreb))
- Tunisia (Gafsa Oases(Oases of the Maghreb))
- Morocco (Oases System in Atlas Mountains (Oases of the Maghreb))
- Kenya (Oldonyonokie/Olkeri Maasai Pastoralist Heritage)
- Tanzania (Engaresero Maasai Pastoralist Heritage Area) (Shimbue Juu Kihamba Agroforestry Heritage Site)

South America / 2 sites Chile (Chiloé Agriculture) Peru (Andean Agriculture)

North America / 1 sites Mexico(Chinampas Agricultural System in Mexico City)

Europe / 2 sites Spain(Malaga Raisin Production System in Axarquia) (Salt production system of Anana)

An inheritance for the future ～Action plan implementation～

[The succession of agriculture, forestry and fisheries activities to relatives in future generations (system conservation).]

- ○Foster pride and confidence in the residents and producers in communities and businesses.
- ○The development of human resources that support agriculture, forestry and fishery industries and efforts to increase the stability of production.
- ○Conservation of areas where biodiversity is fostered.
- ○The handing down of the traditional culture linked with farming.

[Revitalization of the local area by using the GIAHS brand when making items and expanding the number of visitors to the area.]

- ○Branding of agriculture, forestry and fishery products
- ○Expanding the number of visitors to the area
- ○Promoting community development activities
- ○Domestic and International information transmission

The Kunisaki Peninsula Usa GIAHS Promotion Association

Bungotakada City	Regional Vitality Creation Division,	114 Odama, Bungotakada City, Oita Prefecture	879-0692	Tel.0978-22-3100
Kitsuki City	Agriculture and forestry Division,	377-1 Oaza-Kitsuki, Kitsuki City, Oita Prefecture	873-0001	Tel.0978-62-3131
Usa City	Agricultural Administration Division,	1030-1 Oaza-Ueda, Usa City, Oita Prefecture	879-0492	Tel.0978-32-1111
Kunisaki City	Agricultural Administration Division,	280-2 Tabuka, Kunisaki-Machi, Kunisaki City, Oita Prefecture	873-0502	Tel.0978-72-1111
Himeshima Village	Planning Development Department,	1630-1 Himeshima-Mura, Kunisaki District, Oita Prefecture	872-1501	Tel.0978-87-2111
Hiji Town	Agriculture Forestry and Fisheries Division,	2974-1 Hiji-Machi, Hayami District, Oita Prefecture	879-1592	Tel.0977-73-3111

(Secretariat) GIAHS Promotion Section, Agriculture, Forestry and Fisheries Planning Division, Agriculture, Forestry and Fisheries Department, Oita Prefecture
3-1-1 Ohte-Machi, Oita City, Oita Prefecture 870-8501 Tel. 097-506-3525

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