

An Analysis of the Characteristics of Agricultural Heritage Components in GIAHS Sites



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Since FAO introduced the Globally Important Agricultural Heritage Systems(GIAHS) in 2002, 36 regions of 15 countries so far have been listed on GIAHS.

Over time governments and private organizations around the world are becoming active to be listed for GIAHS, and some reserved countries of the Europe and North America now show an increased interest.

This study aims to find the important agricultural heritages of Korea and to prepare the methods for them to be selected as GIAHS.

We have analyzed the proposals of the 36 GIAHS listed in order to study the characteristics of their components of the agricultural heritage which worked for being selected.

1

Agricultural Heritage Component of GIAHS Selection Criteria

1-1 | Agricultural Heritage Component of GIAHS Selection Criteria



- To analyze the properties of the agricultural heritage components, previous studies on the classification of the agricultural heritage were reorganized and reclassified into 13 types and 42 components.
- In addition to this, the analysis entry was set by each type in order to avoid missing or overlooking important characteristics in the analysis process.

1-2 | Agricultural Heritage components and details(1)

Selection Criteria	Classification	Components	Analysis entry
Securing means of food and livelihood	Food and livelihood stability	Subsistence/ Food provide	Sustainable livelihood, challenges for harsh environments, overcome poverty, innovative food production, economy, etc.
	Exchange · reserves	Food storage/ Exchange	Reserves(storage facilities, container and manufacturing technologies, construction-stockpile-management technology, etc.) and exchange (location, size, exchanging methods, etc.)
Biodiversity and Ecosystem function	Biodiversity preservation	Agricultural biodiversity	Crop diversity, biodiversity of agricultural land and the surrounding, habitat preservation, ecological balance
		Eco-friendly farming techniques	Sustainable farming system, organic farming system, cycle farming
	Genetic resources conservation	Seed Conservation/ Breeding	Seeds type, name, preservation·use, breeding technologies
Knowledge Systems and adaptive technology	Knowledge for living · Technology	Farming/ Fishing/ Forestry/ Sericulture/ Beekeeping/ Hunting/ Gathering	Land management, cultivation(breeding) methods, livelihood activities by seasons, traditional knowledge and transmitting system such as planting(reproduction)-cultivation (breeding)-harvesting(hunting, gathering, bucthery)-storage(processing), use and making of tools

1-2 | Agricultural Heritage components and details(2)

Selection Criteria	Classification	Components	Analysis entry
Culture, value systems and social organization, farming culture	Life · Folk medicine	Food/Clothing/Housing	Type, names, purposes, materials, manufacturing· construction methods, taboos, folk belief, symbolism, etc.
		Folk medicine	Medical technology, materials, medical tools, use methods of tools
	Folk art	Crafts/Literature/ Music/Fine arts/ Dance/Drama	Names, origin(source), purpose, author(creator, performer), content, production(creative performance) process, values, transmission, changing patterns
	Systems · Organizations	Community covenant/ Community group	Names, origins, purposes, contents. operational entity, operating methods, joining requirements, activities, relevant documents, etc.
	Folk belief	Community belief/Home belief/ Fortune telling	Names, purposes, time, place, tradition subject, worship object(behavior target), sacrifices, acts, taboos, legends, etc.
	Customs · Rituals	Seasonal customs/ passage rites/ Play	Name, origin, purpose, time, space, contents, procedures, dress, food, folk belief, taboos, legends, etc.

1-2 | Agricultural Heritage components and details(3)

Selection Criteria	Classification	Components	Analysis entry
Significant landscape, Land and Water management functions	Significant landscape	Agricultural landscape/ Housing landscape	Mosaic landscape with Rice paddies · Fields · Grasslands · Forest and etc, terraced rice paddies, agriculture-forestry-housing linkage system
	Land management	Land clearing/ reclaiming	Clearing for agricultural land, including grassland secured(terraced rice paddies, slash-and-burn fields, etc.) and reclaimed(sea, wetlands, etc.)
		Land improvement	Materials and technologies for soil condition improvement of farming land and grass land
		Disaster prevention technology	Facilities and technology for the prevention of floods, cold weather damage, etc.
	Water resource management	Reservoir	Puddles·lakes·ponds, etc, names, construction·management skills
		Irrigation	Pools, ditches, etc, names, construction·maintenance· management skills



2

Characteristic Analysis of the Agricultural Heritage Component

2-0 | Characteristic Analysis of the Agricultural Heritage Component

- Agricultural heritage is a product of challenge and response for the survival of humanity.
- The knowledge and skills of human beings who have challenged the harsh geographic environment of mountains, swamps, deserts and the climatic conditions such as high and low temperature is embedded in a complex and multi-layered GIAHS.
- Agricultural legacy components of GIAHS reigns is also complex and appears as a multi-layered thus it cannot be explained by one characteristic.
- This study analyzes the GIAHS proposals of 36 regions, and examines the characteristics of the GIAHS components focusing on the ten themes such as the location type of GIAHS Sites, the significant agricultural landscape, the agricultural-forestry-fisheries-livestock linkage farming system, the multi-layered, intercropping, rotation cultivation/breeding systems, the soil and water management systems, the repository of agricultural biodiversity and genetic resources, the history of agricultural heritage, preservation of cultural diversity and the other characteristics of the agricultural heritage.

2-1 | Location Type of GIAHS Site

- The 14 sites are in the mountainous regions, which have the salient characteristics of terraced rice paddies and agriculture-forestry-fishery-livestock farming linkage system.
- The three sites of grasslands are implementing mainly livestock and fields farming, the four regions of river and coast show the wetlands nature of agriculture, such as coastal reclamation, water gardens, seafloor farming system, etc., and a linkage with fishery is also important element.
- GIAHS in desert regions are five, which have the characteristics of oases and irrigation systems. They demonstrate remarkable efforts of local residents to overcome the harsh climate and geographical environment.



Location Type of GIAHS Site(1)

Location Type	GIAHS Site(Country, Name, Listed yr.)
Mountains (14)	<ul style="list-style-type: none"> • China, Hani Rice Terraces, 2010 • China, Dong's Rice Fish Duck System, 2011 • China, Pu'er Traditional Tea Agrosystem, 2012 • China, Kuaijishan Ancient Chinese Torreya, 2013 • China, Jiaxian Traditional date Gardens, 2014 • China, Fuzhou Jasmine and Tea Culture System, 2014 • India, Saffron Heritage of Kashmir, 2011 • Japan, Managing Aso Grasslands for Sustainable Agriculture, 2013 • Japan, Traditional tea-grass integrated system in Shizuoka, 2013 • Japan, Minabe-Tanabe Ume System, 2015 • Japan, Takachihogo-Shiibayama Mountainous Agriculture and Forestry System, 2015 • Peru, Andean Agriculture, 2011 • Philippines, Ifugao Rice Terraces, 2011 • Tanzania, Shimbwe Juu Kihamba Agro-forestry Heritage Site, 2011
Grassland (3)	<ul style="list-style-type: none"> • China, Aohan Dryland Farming System, 2012 • Kenya, Oldonyonyokie Olkeri Maasai Pastoral Heritage Site, 2011 • Tanzania, Engaresero Maasai Pastoralist Heritage Area, 2011

Location Type of GIAHS Site(2)

Location Type	GIAHS Site(Country, Name, Listed yr.)
River · Coast(4)	<ul style="list-style-type: none"> • Bangladesh, Floating Garden Agricultural Practices, 2015 • China, Xinghua Duotian Agrosystem, 2014 • Japan, Ayu of the Nagara River System, 2015 • India, Kuttanad Below Sea Level Farming System, 2013
Desert(5)	<ul style="list-style-type: none"> • Algeria, Ghout System, 2011 • Iran, Qanat Irrigated Agricultural Heritage Systems, Kashan, 2014 • Morocco, Oases System in Atlas Mountains, 2011 • Tunisia, Gafsa Oases, 2011 • United Arab Emirates, Al Ain and Liwa Historical Date Palm Oases, 2015
Mountains, Plains, River · Coast Overlapping (10)	<ul style="list-style-type: none"> • China, Rice-fish culture, 2005 • China, Wannian Traditional Rice Culture, 2010 • China, Xuanhua Traditional Vineyards System, 2013 • Chile, Chiloé Agriculture, 2011 • India, Koraput Traditional Agriculture, 2012 • Japan, Noto's Satoyama and Satoumi, 2011 • Japan, Sado's satoyama in harmony with Japanese crested ibis, 2011 • Japan, Kunisaki Peninsula Usa Integrated Forestry, Agriculture and Fisheries System, 2013 • Republic of Korea, Jeju Batdam Agricultural System, 2014 • Republic of Korea, Gudeuljangnon Terraced Rice Paddies, 2014

2-2 | Significant Agricultural Landscape

- The agricultural landscape seriously regarded in GIAHS proposals are 32 regions.
- The terraced rice paddy landscape which has been created by the local communities in order to overcome the mountainous geographical environment, the field and orchard landscape utilizing hills and slopes, the garden farming landscape which is around the settlements, the naturally formed herding landscape in the grasslands, the oases and irrigation systems in the desert and the wetland agricultural landscape in rivers and coastal area constitute the types of landscape.
- The terraced rice paddies appearing in the regions of rice cultivation such as China, Japan, Philippines, Korea create a dynamic mosaic landscape which constitutes agriculture and forestry linkage. In particular, Ifugao of the Philippines and Hani of China terraced rice paddies are a forest-rice paddies-water channels-settlements-water courses linked, and these terraced rice paddies are responsible for soil erosion prevention, residential protection, natural purification functions, and maintain beautiful and magnificent agricultural landscape.

Landscape Type of GIAHS Site(1)

Landscape Type	GIAHS Site(Country, Name)
Terraced rice paddy (Mountains)	<ul style="list-style-type: none"> • China, Hani Rice Terraces • China, Dong's Rice Fish Duck System • Japan, Noto's Satoyama and Satoumi • Japan, Sado's satoyama in harmony with Japanese crested ibis • Japan, Takachihogo-Shiibayama Mountainous Agriculture and Forestry System • Japan, Ayu of the Nagara River System • Philippines, Ifugao Rice Terraces • Republic of Korea, Gudeuljangnon Terraced Rice Paddies
Field and orchard (hills or slopes)	<ul style="list-style-type: none"> • China, Aohan Dryland Farming System • China, Kuaijishan Ancient Chinese Torreya • China, Pu'er Traditional Tea Agrosystem • China, Fuzhou Jasmine and Tea Culture System • India, Saffron Heritage of Kashmir • Japan, Traditional tea-grass integrated system in Shizuoka • Japan, Minabe-Tanabe Ume System • Peru, Andean Agriculture • Republic of Korea, Jeju Batdam Agricultural System

Landscape Type of GIAHS Site(2)

Landscape Type	GIAHS Site(Country, Name)
Herding landscape (grasslands)	<ul style="list-style-type: none"> Kenya, Oldonyonyokie Olkeri Maasai Pastoral Heritage Site Tanzania, Engaresero Maasai Pastoralist Heritage Area Japan, Managing Aso Grasslands for Sustainable Agriculture
Garden farming (around settlements)	<ul style="list-style-type: none"> China, Xuanhua Traditional Vineyards System China, Jiaxian Traditional date Gardens Tanzania, Shimbwe Juu Kihamba Agro-forestry Heritage Site
Wetland agriculture (rivers or seashore)	<ul style="list-style-type: none"> China, Xinghua Duotian Agrosystem Bangladesh, Floating Garden Agricultural Practices India, Kuttanad Below Sea Level Farming System
Oases and irrigation systems (deserts)	<ul style="list-style-type: none"> Algeria, Ghout System Iran, Qanat Irrigated Agricultural Heritage Systems, Kashan Morocco, Oases System in Atlas Mountains Tunisia, Gafsa Oases United Arab Emirates, Al Ain and Liwa Historical Date Palm Oases

2-3 | Agriculture-Forestry-Fishery-Livestock farming Linkage system



- The GIAHS regions shows prominently linked to agriculture and the various walks of life to adapt to the geographical environment.
- This linkage system can be a human challenge to ensure the stability and sustainability of livelihoods, and it is a product of creative wisdom made by the traditional knowledge and technology of the local community to use the nature and the surrounding natural environment integrated.

GIAHS Site emphasized with Livelihood business connected system(1)

Connected System	GIAHS Site(Country, Name)
Agriculture-Fishery	<ul style="list-style-type: none"> • China, Xinghua Duotian Agrosystem • Republic of Korea, Gudeuljangnon Terraced Rice Paddies
Agriculture-Livestock Farming	<ul style="list-style-type: none"> • China, Aohan Dryland Farming System • India, Koraput Traditional Agriculture, 2012 • Peru, Andean Agriculture • Tunisia, Gafsa Oases • United Arab Emirates, Al Ain and Liwa Historical Date Palm Oases
Agriculture-Forestry-Fishery	<ul style="list-style-type: none"> • China, Hani Rice Terraces • Japan, Ayu of the Nagara River System • Japan, Kunisaki Peninsula Usa Integrated Forestry, Agriculture and Fisheries System • Japan, Noto's Satoyama and Satoumi • Japan, Sado's satoyama in harmony with Japanese crested ibis
Agriculture-Forestry-Livestock Farming	<ul style="list-style-type: none"> • Algeria, Ghout System • China, Fuzhou Jasmine and Tea Culture System • China, Jiaxian Traditional date Gardens • China, Pu'er Traditional Tea Agrosystem • China, Wannian Traditional Rice Culture • Japan, Managing Aso Grasslands for Sustainable Agriculture • Japan, Takachihogo-Shiibayama Mountainous Agriculture and Forestry System • Tanzania, Shimbwe Juu Kihamba Agro-forestry Heritage Site

GIAHS Site emphasized with Livelihood business connected system(2)

Connected System	GIAHS Site(Country, Name)
Agriculture-Fishery-Livestock Farming	<ul style="list-style-type: none"> • Bangladesh, Floating Garden Agricultural Practices • China, Dong's Rice Fish Duck System • China, Rice-fish culture • Chile, Chiloé Agriculture • India, Kuttanad Below Sea Level Farming System • Philippines, Ifugao Rice Terraces • Republic of Korea, Jeju Batdam Agricultural System
Agriculture-Livestock Farming-Beekeeping	<ul style="list-style-type: none"> • Iran, Qanat Irrigated Agricultural Heritage Systems, Kashan • Kenya, Oldonyonyokie Olkeri Maasai Pastoral Heritage Site • Morocco, Oases System in Atlas Mountains • Tanzania, Engaresero Maasai Pastoralist Heritage Area
Agriculture-Forestry-Livestock Farming-Beekeeping	<ul style="list-style-type: none"> • China, Kuaijishan Ancient Chinese Torreya • Japan, Minabe-Tanabe Ume System

2-4 | Multi-layered·Inter-cropping·Rotation cultivation/breeding System

- The important structural characteristics of crop cultivation or livestock breeding in GIAHS sites are the three systems, which is the Multi-layered · Inter-cropping · Rotation cultivation/breeding Systems, and there also appears abundant crop diversity.
- Multi-layered cultivation system can be found easily in tropical regions and desert areas, which constitutes a structure of 3-4 layers of arboreal, shrubs, surface plants, where large trees are controlling pests and diseases regulating the microclimate by preventing water from evaporation, thus creates an appropriate conditions for crop cultivation. Especially Kihamba Agro-forestry Heritage in Tanzania tall tress, bananas, coffee and vegetables are composed of four layers of plants in combination with forage crop production to maximize land use.



- Garden farming systems such as Xuanhua Traditional Vineyards System and Jiaxian Traditional date Gardens in China also have the multi-layered cultivation in general, which have intercropping of several products such as potatoes, beans, rice, watermelon, melon and yam between the fruit trees, and poultry growing together.
- China's Aohan Dryland Farming System, Peru's Andean Agriculture, Chile's Chiloé Agriculture), Indian Koraput Traditional Agriculture sites have secured livelihood through intercropping and rotation cultivation, and maintained crop diversity. Floating Garden Agricultural Practices in Bangladesh have carried on repeated cultivation of different variety of vegetables and spices, and combined fishery. China's rice-fish-duck farming system also has kept repeated cultivation of fish(fishery) and duck(livestock farming) in the rice paddies, which is contributing to increased income.
- Takachihogo-Shiibayama Mountainous Agriculture and Forestry System in Japan consists implementation of both the agricultural farming of mushrooms, rice, tea, etc. and the animal husbandry through logging, slash-and-burn, reclamation of lands, and takes rotational cultivation which helps protect forest resource. In Kunisaki peninsula Usa Integrated Forestry, Agriculture and Fishery system Site in Japan they cut down oak trees in a rotation method in order to grow shiitake mushrooms, which promotes the metabolism of forest. This contributes to the Satoyama landscape conservation, while maintaining the public interest function of the forest as water conservation.

2-5 | Soil and Water Management Systems



- Challenges from the local community to improve soil are seen in Japan's Management of Aso Grasslands for Sustainable Agriculture by burning down the grassland, a mixture of coppice and weeds agriculture in Minabe-Tanabe Ume agricultural farming system, the slash-and-burn farming in Takachihogo-Shiibayama mountainous Agriculture and Forestry system, and the terraced rice paddies in China, Japan and Phillipines using humus descended flows in the forests of upland soil to maintain the soil fertility.

- The fertilization management in GIAHS regions is done by maintaining soil health mostly using feces, livestock manure, compost. In Jiaxian Traditional date Gardens of China, breeding poultry reaps the effects that naturally supplies the fertilizer and controls the pests.
- Xinghua Duotian Agrosystem of China, a wetland farming system uses aquatic plants, and Jasmine and Tea Culture System of Fuzhou City uses the green manure crops.
- Floating Garden Agricultural Practices in Bangladesh uses buoys made with water hyacinth and algae instead of fertilizer.
- Hani Rice Terraces of China implement the fertilization management by utilizing mountainous altitude to send down the water containing fertilizer components to the rice fields. This area has the public and the private fertilizer wells.
- The Rice-fish-duck System in China and the Philippines fish and ducks provide the rice with fertilization and at the same time removing bugs and weeds, and the water waves created by their movements smoothen the soil.
- The Traditional tea-grass integrated system in Shizuoka of Japan, the surrounding tea plantations and grasslands are created for the use of fertilization management, thus produce high quality tea.

- Along with the above, the water management is one of the elements which is seriously addressed in the GIAHS proposal.
- Wannian Traditional Rice Culture in China maintains the irrigation system which starts from the upstream of the cold spring water, and the irrigation system in the Rice Terraces in China's Hani and the Philippine's Ifugao operate with small watersheds of collected rainwater to be supplied to the forest-village-rice paddies then led to the river.
- In Hani, in particular, the water is supplied through the irrigation canals which are made of wood blocks and slabs. They have water managers for waterway maintenance and management of water, and pay the managers rice in return.
- A unique irrigation system is maintained in the Near East and North African desert, the oasis and Ghout, Qanat and Falaj.
- Traditional Irrigation management system of Gudeuljangnon Terraced rice paddies in South Korea can be a unique case, which is derived from the heating system of Korean traditional houses.

2-6 | Repository of Agricultural Biodiversity and Genetic resources

- Agricultural biodiversity is also an important component of GIAHS. GIAHS regions may be a base for agricultural biodiversity, where a variety of crop is cultivated and livestock is implemented.
- In Maasai Pastoralist Heritage in Kenya and Tanzania, corn, beans and other crop production are maintained together with the major livestock farming including cattle, donkeys, sheep, and so on.
- In Shimbwe Juu Kihamba Agriculture and Forestry Heritage of Tanzania, coffee, coconuts, bananas, beans, potatoes, corn, yam, pineapple, mango, casava, etc. are produced and 40 endangered plants have been preserved.
- In fact, the species diversity in GIAHS regions is higher than in other regions, where there is an implication of a global 'repository of genetic resources'. In particular, the regions which are referred to as a storage of genetic resources are isolated from other areas due to geographical and environmental factors. Consequently, the frequency of gene pool to be imported, exported and floating are low, thus the genetic resources, seeds are well preserved.

Agricultural biodiversity of GIAHS Site(1)

Country	GIAHS Site	Details
China	Rice-fish culture	<ul style="list-style-type: none"> Rice genetic resources, poultry and fish(carp, shrimp, loach, eel, etc.), beans, taro, lotus root, eggplant, etc.
	Dong's Rice Fish Duck System	<ul style="list-style-type: none"> 261 kinds of indigenous rice varieties
	Hani Rice Terraces	<ul style="list-style-type: none"> 195 kinds of indigenous rice varieties
	Aohan Dryland Farming System	<ul style="list-style-type: none"> Millet, buckwheat, sorghum, peanuts, soybeans, rapeseed, sesame seed, sunflower, tobacco, wheat, etc.
	Pu'er Traditional Tea Agrosystem	<ul style="list-style-type: none"> 4 family 31 kinds of tea • 186 rice kinds • 124 kinds of dry-field rice 22 corn kinds • 90 wheat kinds • peas, sesame, sorghum, etc. horses, donkeys, pigs, sheep, rabbits, chickens, ducks, geese, etc.
	Kuaijishan Ancient Chinese Torreya	<ul style="list-style-type: none"> 6 nutmeg kinds • rice, corn, wheat, potatoes, beans, sesame, tea, bamboo shoots, mushrooms • pigs, sheep, rabbits, chickens, ducks, geese, bees, etc.
	Xuanhua Traditional Vineyards System	<ul style="list-style-type: none"> 40 species of grapes, rice and beans, foil, mallow flowers, melons, etc.
Japan	Minabe-Tanabe Ume System	<ul style="list-style-type: none"> Cultivating 23 kinds of plum and breeding new varieties suitable to the area
	Ayu of the Nagara River System	<ul style="list-style-type: none"> Sweetfish, red trout, eels, Ishikawa Salmon, Southeast crabs, dace, minnow, etc. and 17 kinds of fishing species • Endangered followers dog, the Japanese giant salamander which is national special natural monument and vulnerable species, rare animals including national special natural monument of Japan goats, goshawk

Agricultural biodiversity of GIAHS Site(2)

Country	GIAHS Site	Details
Bangladesh	Floating Garden Agricultural Practices	<ul style="list-style-type: none"> Okra, cucumber, gourd, radish, cabbage, tomatoes and various vegetables and spices
Peru	Andean Agriculture	<ul style="list-style-type: none"> Over 400 species of potatoes • corn, yacon, oka, coca, etc
Chile	Chiloé Agriculture	<ul style="list-style-type: none"> Over 200 kinds of potatoes • mango, strawberry and garlic
India	Koraput Traditional Agriculture	<ul style="list-style-type: none"> Genetic resources such as 340 kinds of rice paddy crops, 8 sorghum kinds, 9 kinds of beans, 3 kinds of fiver crops, 7 vegetable kind, etc. Over 1,200 kinds of medicinal plants use
Algeria	Ghout System	<ul style="list-style-type: none"> Vegetables, beans, medicinal plants, fruits, etc. Sheep, goats, camels, cattle, poultry, etc.
Iran	Qanat Irrigated Agricultural Heritage Systems	<ul style="list-style-type: none"> 52 kinds of crops such as pomegranate, cucumber, pears, almonds, cherries, walnuts, plums, watermelon, etc.
Morocco	Oases System in Atlas Mountains	<ul style="list-style-type: none"> 7 kinds of grains including wheat, barley, corn, grain, etc. 7 kinds of beans, 11 kinds of horticultural products, 9 kinds of spices, 13 kinds of fruit, 53 kinds of vegetables.
Tunisia	Gafsa Oases	<ul style="list-style-type: none"> Fruits such as apple, pear, plum, peach, mulberry, apricot, olive, citrus fruit, grapes, etc. Fruits and vegetables such as cucumber, melon, pumpkin Vegetables such as parsley, celery, spinach, cabbage, etc. Pulse, aromatic, grain, feedstuff, ornamental plants, etc.

2-7 | History of Agricultural Heritage

- It would not be wrong to say that agriculture is the greatest revolution in the history of mankind. Humanity has overcome hunger through agriculture and has created the diverse cultures.

History of the GIAHS Site(1)

Country	GIAHS Site	Details
China	Wannian Traditional Rice Culture	<ul style="list-style-type: none">• Relics of Xianrendong(仙人洞) and Diaotonghuan(吊桶环) with a history of ten thousand years
	Aohan Dryland Farming System	<ul style="list-style-type: none">• Xinglongwa(興隆洼) cultural heritage with a history of 8,000 years• World's first millet cultivation
	Kuaijishan Ancient Chinese Torreya	<ul style="list-style-type: none">• Torreya tree forest with a history of 2,000 years• Over 1,400 year-old torreya tree
	Pu'er Traditional Tea Agrosystem	<ul style="list-style-type: none">• Origin of tea• 2,700 year old wild tea tree• 3,200 year old tea tree
	Jiaxian Traditional date Gardens	<ul style="list-style-type: none">• The first jujube cultivation areas with a history of 1,000 years• The 1,400 year old jujube tree
	Xuanhua Traditional Vineyards System	<ul style="list-style-type: none">• Original form of Chinese garden farming with a history of 1,300 years• 600 year old vine tree
	Fuzhou Jasmine and Tea Culture System	<ul style="list-style-type: none">• Jasmine which has been cultivated for 2,000 years

History of the GIAHS Site(2)

Country	GIAHS Site	Details
Iran	Qanat Irrigated Agricultural Heritage Systems	<ul style="list-style-type: none"> Qanat irrigation system dating back to BC 800 year
United Arab Emirates	Al Ain and Liwa Historical Date Palm Oases	<ul style="list-style-type: none"> Falaj irrigation system which has been maintained for 1,000 years
Philippines	Ifugao Rice Terraces	<ul style="list-style-type: none"> Terraced rice paddies that has been maintained for 2,000 years
India	Saffron Heritage of Kashmir	<ul style="list-style-type: none"> Saffron which has been cultivated for 2,500 years
Tanzania	Maasai Pastoralist Heritage Area	<ul style="list-style-type: none"> Nomadic history of 1,700 years
Japan	Noto's Satoyama and Satoumi	<ul style="list-style-type: none"> 1,300-year-old terraced rice paddies



2-8 | Transmission of Traditional Farming Techniques

- China and the Philippines where rice-fish, rice-fish-duck farming systems, which are the linkage farming of rice cultivation, fishing and duck breeding, have been implemented. These farming systems are giving to significant reduction of fertilizer and pesticide, and fish and ducks are being secondary income resources.
- The field agricultural system of Aohan in China continues farming by cows, and still uses traditional farming appliances such as stone shovels, stone plows, stone knives, stone mills, and so on. Animal manure or chopped crop stalks are used as fertilizer, and they practice the rotation farming and inter-cropping which can prevent pest. Xinghua wetland farming region also implements farming by cows, and their fertilization managed by making an organic fertilizer from collected mud and aquatic plants.
- In China Kuaijishan has the grafting technique to pass down 1,500 years ago, the jujube tree grafting techniques and skills in picking shoots have been transmitted, and dates harvest is carried out in traditional harvesting methods using ladders and bamboo baskets.

- In Noto Peninsula of Japan the female divers are collecting sea cucumber, oyster, laver, abalone, seaweed, etc., and they maintain the traditional fishing methods using the dugout, bamboo rafts, paulownia nets to catch fish. They have maintained the traditional salt manufacturing method and charcoal manufacturing techniques that have been handed down. Sado Satoyama of Japan has maintained the traditional and environment-friendly agriculture such as Kuruma Rice Planting for the purpose of living in harmony with the crested ibis. Aso grassland also maintains the traditional farming techniques which has been transmitted, such as using cows and horses in plowing, fertilizing the land with horse and cow manure and cutting and burning the grassland.
- In Cheongsando of Korea the traditional irrigation system of Gudeuljangnon rice paddies and Wugyeong(farming with cows) are maintained, and traditional farming tools, pest control using perilla oil, eco-friendly fertilization management has been handed down. Jeju Island maintains the transmitted techniques such as the field stepping, the separation of the wheat and the chaff by the wind, traditional fishing techniques such as Seokbangryeom(fishing by stone walls) and sea diving by Haenyeo, and so on.

- In India Kuttanad Below sea level farming system has also maintained the Rice-fish-duck farming, Koraput has implemented the slash-and-burn cultivation and rainwater farming. Kashmir has a long history of development of saffron drying techniques.
- Kashan in Iran has 473 Qanat irrigation systems, and has grown watermelons by Sombak method of cultivation, which is growing watermelons in pits.
- Atlas Mountains in Morocco has implemented Agoudal management of ranch, which helps regulation of livestock breeding and crop cultivation period, and maximize the productivity from the limited land.
- Shimbwe Juu in Tanzania has been practising a traditional irrigation system of pulling up a water stream from the mountains. With this, a hemisphere shaped Garden farming is intensively implemented in the surrounding mountains.
- Al Ain and Liwa of Arab Emirates show a unique farming techniques such as artificial insemination of dates.



2-9 | Preservation of Cultural Diversity



- Preservation of cultural diversity is also an important objective of the establishment of GIAHS.
- In particular, the proposals from China and Japan show a lot of traditional cultures which are related to agriculture, such as annual rituals to pray for well-being, good harvest and well-being of local community, customs and annual festivals, worshipping ceremonies of gods, mountain god, water god and dragon god, life rituals, traditional games, local foods consist of local product and the cultural environment, and so on. They all represent the cultural diversity.

GIAHS Site showing Cultural diversity(1)

Country	GIAHS Site	Cultural diversity related information
Japan	Japan, Noto's Satoyama and Satoumi	<ul style="list-style-type: none"> Traditional alcohol Charcoal Wajima lacquerware(輪島塗) Aenokoto agricultural ritual (UNESCO ICH) Amamehagi(アマメハギ, important intangible folk cultural asset) Kiriko Festival Abare Festival(あばれ祭り) Mushiokuri(むしおくり) pest prevention awareness ceremony Mensamanento to chase the bad luck away for a New year(important intangible folk cultural property)
	Sado's satoyama in harmony with Japanese crested ibis	<ul style="list-style-type: none"> Noh(能) play Onidaiko(鬼太鼓) Hanagasa dance(花笠) Hakusan Shrine dance ritual
	Managing Aso Grasslands for Sustainable Agriculture	<ul style="list-style-type: none"> Volcano god, sacrifice, Aso pioneering god worship Aso agricultural rite (Important Intangible Folk Cultural Property) Tanomi ritual(田の実) Hifuri rite(火振り) Otaue-jinkoshiki Hitaki rite Onda Festival
	Kunisaki Peninsula Usa Integrated Forestry, Agriculture and Fisheries System	<ul style="list-style-type: none"> Shujo-onie(Important intangible folk cultural property) Otaue Doburoku Water god, Mountain god worship
	Ayu of the Nagara River System	<ul style="list-style-type: none"> Honminoshi(本美濃紙, UNESCO Intangible Heritage of Humanity) Minowashi Gifu(岐阜) Wagasa umbrella Gifu chouchin paper lanterns(岐阜 提灯) Nagataki En-nen Festival(長滝の延年, Important intangible folk cultural Property) Gujo Odori(郡上踊) Dance festival(Important intangible folk cultural property) Hakusan and Water god worship
	Minabe-Tanabe Ume System	<ul style="list-style-type: none"> Plum foods including dried plums, plum pickles, bonito plum, plum rice, fish boiled with plum Plum Festival Takagitenpo-jinja Shrine Autumn Festival Kiyokawa(清川) Village Festival(lion dance performances) Mushiokuri(虫送り) of Gokuraku-ji Temple(極楽寺) Yamamatsuri(山祭り)
	Takachihogo-Shiibayama Mountainous Agriculture and Forestry System	<ul style="list-style-type: none"> Kariboshikiri Uta(刈干切唄, weeding grave song) Hietsuki Bushi(稗搗節, hulling grain sound) Kagura(神楽) Shishikake Festival(猪掛祭り) Yaboyaki(灌木叢烤) Water god(水神) worship

GIAHS Site showing Cultural diversity(2)

Country	GIAHS Site	Cultural diversity related information
China	Fuzhou Jasmine and Tea Culture System	<ul style="list-style-type: none"> • Sprinkling of jasmine in the river on the Chilseok/Qixi(lunar July 7) wishing for eternal love • Dragon Boat(龍船) Festival of the Dano(lunar May 5) • Drinking jasmine tea on wedding day means a unification of the two families
	Aohan Dryland Farming System	<ul style="list-style-type: none"> • Worshiping the sky, Aobao(敖包), shovel, stars • Ritual for rain • various festivals including Dragon dance, Bamboo horse, etc • At the funeral putting the millet and sorghum in a jar, or placing a straw basket at the head of the casket.
Bangladesh	Floating Garden Agricultural Practices	<ul style="list-style-type: none"> • Harvest ritual of Bengali celebration, 'Nabanna' is held in November-December in admiration of Lakshmi
Kenya	Oldonyonyokie Olkeri Maasai Pastoral Heritage	<ul style="list-style-type: none"> • Serving a fig tree in Mukurwe-wa-Nyagathanga as the god descending first divine ancestor
Tanzania	Engaresero Maasai Pastoralist Heritage Area	<ul style="list-style-type: none"> • OldoinyoLengai volcano is a object of mountain god worship. It dedicates a cow as a sacrifice, which has to be stolen cows from other tribes.
Morocco	Oases System in Atlas Mountains	<ul style="list-style-type: none"> • At Moussem(UNESCO ICH), a gathering of around 30 tribes in every May in one place, various events happen such as food and goods sale or exchange, livestock competitions, wedding ceremonies, music plays, singing, games, etc.
United Arab Emirates	Al Ain and Liwa Historical Date Palm Oases	<ul style="list-style-type: none"> • Eating dates at the end of Ramadan • Al ain cultural heritage landscape (UNESCO world heritage)

2-10 | Other characteristics of the Agricultural Heritage

- In addition to the nine kinds discussed above, there are other components of the largest scale of agricultural heritage in a country or in the world.
- Hani terraced rice paddies in China is 70,000ha, Kuaijishan torrey tree group reaches 20,000ha and Pu'er has the world's largest wild tea trees.
- The seaweed beds in Noto Peninsula is 14,761ha, the largest in Japan. The oak forests of the Kunisaki Peninsula is the largest in Japan.
- The ume field of Minabe-Tanabe is 4,000ha, and is famous for Japan's largest ume harvest of 44,000 tons, which is 50% of the whole production of Japan.
- Batdam(Field walls) of Korea's Jeju Island has its length of a whopping 22,000km. The world famous Saffron farm in Indian Kashmir boasts the area of 3,200ha that is dedicated to saffron cultivation only.
- Here the modifier 'largest' is not only for the scale of the agricultural heritage but also for its richness and harmony, thus plays an important factor for GIAHS selection criteria.

- The activities of the local community to transmit culture and traditional agricultural techniques is essential component of the heritage.
- Agricultural heritage is maintained and constantly reinvented through the spontaneous wills and dynamic efforts of local community.
- Maasai community of Kenya and Tanzania, Chiloe Mingas of Chile and Chagga tribes of Simbweju in Tanzania have local communities that have been passed down for generations. They all give agricultural heritage the viability.



- Agricultural heritage sites of wetlands, deserts, tropical zone are receiving interest with regard to the climate change.
- GIAHS Sites such as Bangladesh's floating gardens located in the floodplain, India's Kuttanad lowlands farming located in the lower sea level, China's Xinghua wetland agriculture, Algeria's Ghout, Tunisia's Gafsa Oasis, Morocco's Atlas Mountains oasis and Al Ain and Liwa oases in the United Arab Emirates may be an alternative measure for adapting to the climate change that threatens humanity, and can mitigate the threat.

Thank You!