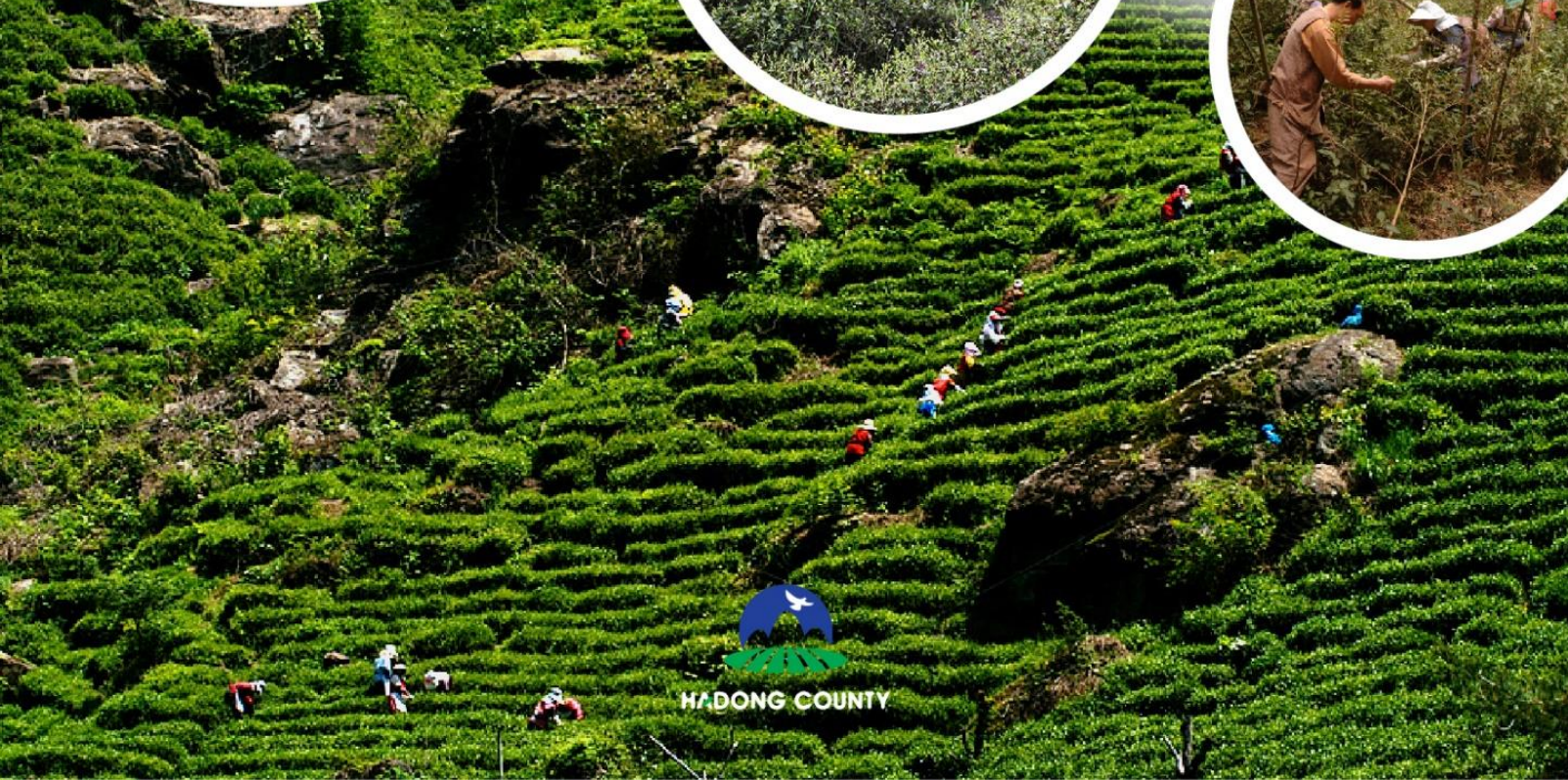




GIAHS PROPOSAL

Traditional Hadong Tea Agrosystem in Hwagae-myeon

November, 2017

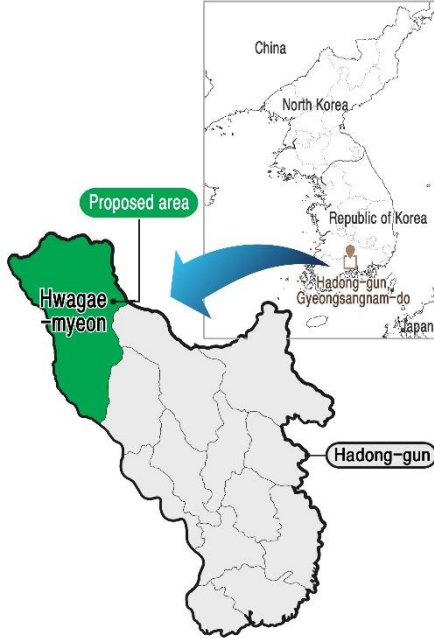


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Template for GIAHS proposal

I . SUMMARY INFORMATION

Name/Title of the Agricultural Heritage System: <p style="text-align: center;">Traditional Hadong Tea Agrosystem in Hwagae-myeon</p>	
Requesting Agency/Organization - Office of Hadong-gun, Gyeongsangnam-do	
Responsible Ministry (for the Government) - Ministry of Agriculture, Food and Rural Affairs(MAFRA)	
Location of the Site - Latitude 35°11'18"N, Longitude 127°37'31"E(Office of Hwagae-myeon standard)	
Accessibility of the Site to Capital City or Major Cities - Coming from abroad, land in Incheon International Airport(ICN) or fly to Sachun Airport from Seoul Gimpo Airport(GMP) around 55minute flight, and then 1hour drive to Hwagae-myeon - Or take a bus from Seoul South Terminal and get off at Hwagae City Bus Terminal - Or take KTX train from Seoul Station, get off at Suncheon Station or Guryegu Station, and take the cross country bus or a car from the station to Hwagae-myeon	
Area of Coverage: 13,437ha / 597.8ha (Hwagae-myeon / Tea Cultivation area)	
Agro-Ecological Zones: Tea cultivation of Temperate, sub-continental	
Topographic features: A hilly and mountainous area surrounded by Mt. Jiri	
Climate Type: Oceanic climate, Rainy region	
Approximate Population: 3,494 people	
Ethnicity/Indigenous Population: 3,476 people	
Main Source of Livelihoods: Agriculture (Tea), Fisheries (Fresh water fish), Tourism service	
Executive Summary <p>Hadong-gun (Hadong County) is located in the southern part of the Korean Peninsula, West of Gyeongsangnam-do (Gyeongsangnam-do Province). It is surrounded by Jiri Mountain National Park on the North, Seomjin River on the West, and the South Sea on the South. Hadong-gun has an area of 675.5km² and there are about 50,000 residents. Hadong-gun is comprised of thirteen lower administrative divisions—one eup and twelve myeon—and traditional tea agriculture is conducted throughout the region. Among the many tea producing areas across the country, the most prominent area of hand-made tea production, Hwagae-myeon, is located in the northwest part of Hadong-gun. Surrounded by Jiri Mountain, the total area of Hwagae-myeon is composed of mountainous regions 100~1,000m high with steep mountains bordering the area. Seomjin River flows on the Southwest border of Hwagae-myeon, and from the northern part of mountains, Hwagae Stream flows through the center and meets Seomjin River on the South.</p>	

Hwagae-myeon makes up 87.8% of the green tea production in Hadong-gun and still maintains its traditional tea agriculture system. Hwagae-myeon is Korea's prominent tea-producing area leading the development of the country's tea industry and tea culture, along with its upper administrative division, Hadong-gun.



Hwagae-myeon boasts 1,200 tea cultivation history. From this area, the Koreans started to grow tea for the first time. Its traditional way of producing and processing tea has been in tact until now and still serves as an important means of living for the residents. The Buddhist culture flourished in Hwagae where many temples played an important role so that people referred to it as “Jiri Mountain Buddhism.” The temples

and their monks spearheaded tea production in this region and spreading the traditional cultivation nationwide before coming to the modern era. The traditional tea fields are still located vastly around the Buddhist temples including Ssanggye Temple and Chilbul Temple. The monks and the locals have been working together to cultivate tea fields and share their agricultural knowledge.

Jiri Mountain on its south and Hwagae stream on its north surround Hwagae traditional tea fields. The tea fields were created on slopes, suitable to grow native tea plants. Hwagae, with other villages, marks the northern boundary of tea cultivation in Korea. Geographically, this area has some adverse conditions for tea farming. However, the locals were smart to cultivate tea fields on slopes helping the forest block the cold wind and the moisture naturally flowing from Hwagae Stream maintain the optimal humidity and temperature. Hwagae Stream could form a microclimate environment apt to cultivate tea. This is why tea agriculture in Hwagae was able to continue for over a thousand years despite unfavorable geographical and climatic conditions.

It is a nature-friendly agricultural system and manages the land with minimum human intervention in symbiosis with nature. Instead of using artificial fertilizers to manage the soil and tea trees, residents of Hwagae used *pulbiba*, the region's traditional natural compost made of the by-products from the adjacent oak forests and the branches and old leaves gained during *gaengsin* (the region's unique pruning process) in fall. Furthermore, they also prevented the damage to the tea leaves from harmful insects by maintaining the weeds on the lower part of the tea tree without cutting them. In traditional tea fields in particular, various kinds of fruit trees (chestnut trees, apricot trees, etc.) and forest products are grown along with the tea trees. They helped to control the sunlight and maintain the soil's composition and fertile ground. This contributes to the production of traditional tea leaves with various tastes in even a single field.

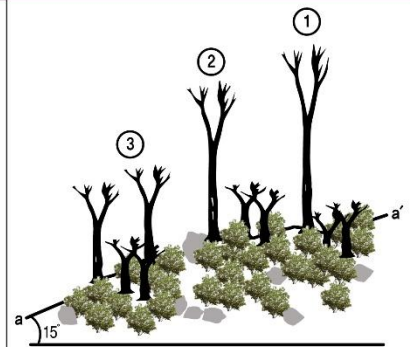
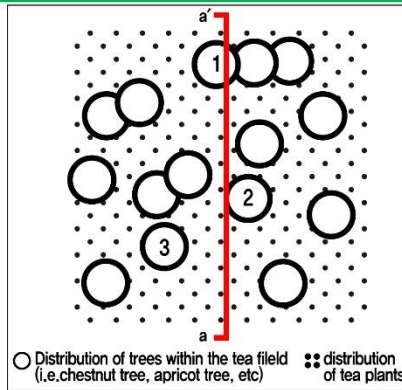
Ecologically, traditional tea fields serve as an ecological axis which connects the habitats of various animals and plants living in or around Jiri Mountain, both as an accommodator and supplier of the species. Traditional tea fields of Hwagae-myeon is different from that of China and Japan. Tea fields together with other trees, crops and plants consist of a colony of lush vegetation carpeting over rocks on the rocky slopes. Its diversity is so evident in the different scenery the system offers every season. The locals cultivate other crops in traditional tea fields as well as another important means of living for the residents and contributing to enhancing agrobiodiversity of the system. The Traditional Hadong Tea Agrosystem was designated as Korea's Important Agricultural Heritage System (KIAHS) in 2015, and there are many ongoing conservation and management activities at a national and regional level.

Circulation of Traditional Hadong Tea Agrosystem

Influence of mountainous environment on traditional tea cultivation

- Formation of climate suitable for growing tea plants
- Provision of habitats for flora and fauna
- Prevention of soil loss on slopes

Traditional tea fields cultivated with a variety of arbors and shrubs

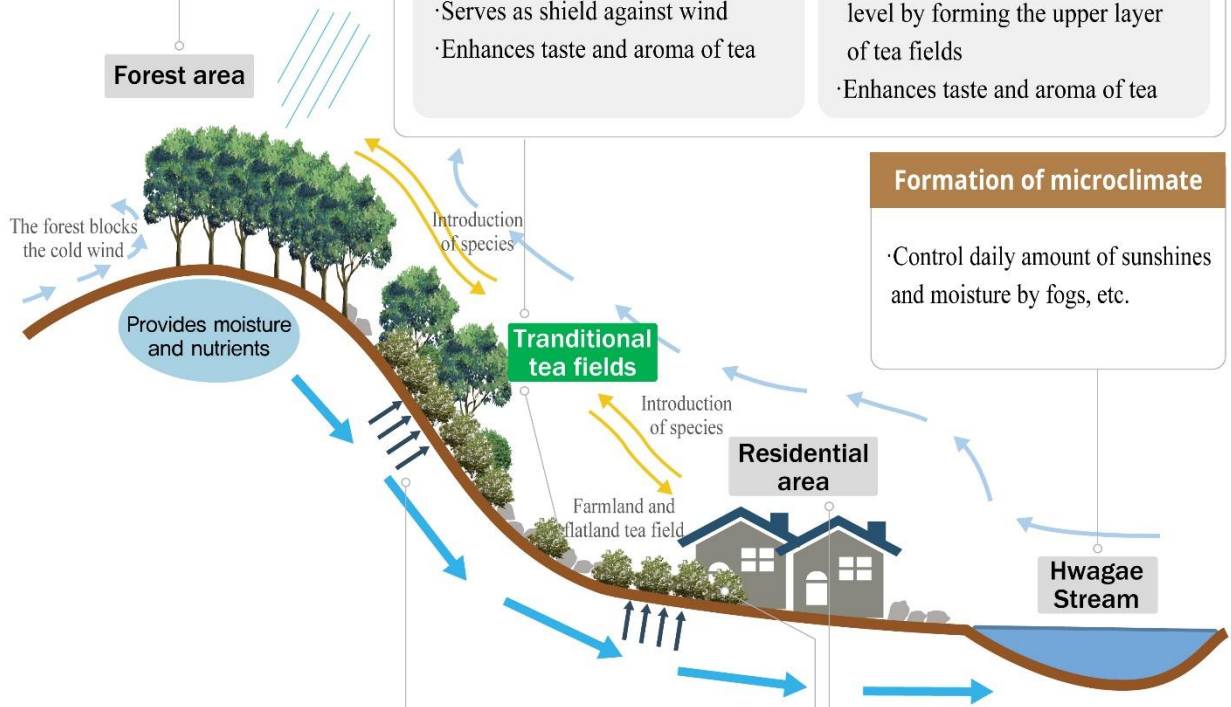


Apricot/Chestnut Trees

- Utilizes the upper layer of tea fields
- Controls moisture and temperature level by forming the upper layer of tea fields
- Enhances taste and aroma of tea

Bamboo Trees

- Forms boundary along tea fields
- Serves as shield against wind
- Enhances taste and aroma of tea



Use of tea and forest by-product

- Eco-friendly management by *gaengsin*, *pulbibae*, etc
- Use dry twigs and fallen leaves

Cultivation of various food crops

- Maintaining diversity of agricultural product
- Produces workplace (Tea processing, etc)
- Used as the residents' means of living

Formation of tea agriculture related customs

- Operation of 'Pumasi team', a community that exchanges workforce
- Transmission of traditional agricultural method/culture
- Traditional tea ceremonies pass down in daily lives



II. Description of the Agricultural Heritage System

1. Significance of Traditional Hadong Tea Agrosystem

The Traditional hadong tea agriculture is an agricultural system of long history, which residents have maintained for 1,200 years by adapting to the barren environment of the mountainous terrain of Jiri Mountain. Most remarkably, well aware of the importance of the region's natural environment, residents of Hadong have preserved the region's unique agricultural method and culture without damaging the natural environment their ancestors had maintained. Traditional hadong tea agrosystem which was transmitted among the residents in their everyday lives was recognized for its value as Korea's Important Agricultural Heritage System (KIAHS) in 2015.

Long History as the Nation's First Tea Cultivation Area and its Unique Agrarian Culture

As a significant place in the thousand years of Korean tea culture history, Hwagae-myeon had its first tea planted under the order of the king in 828 AD near Ssanggye Temple of Jiri Mountain. Having many Buddhist temples nearby, the region's tea agriculture was maintained and developed by the Buddhist monks from the neighboring temples. Later on, the community developed into a more secular one with the influx of farmers who created more fields by slashing and burning the forests and formation of villages. Hence, the development and management of the tea agriculture method was gradually shared with farmers.

Furthermore, "*Cha Sibaeji* (The First Tea Field)" and "*Choi-go-cha Namu* (The Oldest Tea Tree)" at the entrance of Ssanggye Temple in Hwagae-myeon stand as the living proof that represents Korea's tea cultivation and its history. The first tea field played an important role in vitalizing the tea agriculture of Hwagae after the 1960s, and it is now managed by the monks of Ssanggye temple and the locals. It is also used as a tea-harvesting experience center during Hadong Wild Tea Cultural Festival.

Since a long time ago, Hwagae-myeon has preserved and followed the region's traditional tea making methods which feature roasting of tea leaves in a cast-iron caldron. As similar as they may look to China's tea manufacturing methods, they are different in that there is a repetition of roasting and rubbing of the roasted tea leaves against a straw mat before putting them back into the cast-iron caldron. As traditional tea fields are dispersed all over the slopes, harvest of tea leaves is conducted in different locations and times, which make the tea leaves develop different characteristics. Thus, the residents established their unique manufacturing method where tea-roasting is conducted several times according to the different characteristics of tea leaves, to make them have the same taste and aroma. The traditional tea agricultural method and knowledge system have been developed and spread by monks of Hwagae region, and the hand-roasted tea manufacturing method and tea culture are transmitted by local tea masters.



Photo 1. Hand-roasted tea manufacturing

Hence, the traditional tea, harvested and produced by the traditional knowledge system, holds a competitive edge in terms of quality compared to other tea products that are manufactured in bulk by autonomous cultivation systems and machines. This advantage also contributes significantly to the residents' livings, and local residents are thus developing plans to differentiate their tea products with those from other regions: They are keeping their traditional methods, rather than adopting an autonomous and modernized one that will eventually deform the traditional methods despite its benefits such as making the tea fields more productive and their management more convenient. Currently, 95% of the tea farms in Hwagae are producing environment-friendly tea without any usage of pesticides, and have announced the extension of this "No Pesticide Policy" to all kinds of agricultural and forest products they produce through the application of the eco-friendly agrarian technology to their cultivation.

Moreover, various documents, folk songs, and everyday customs related to tea have been passed down to this very day. Traditional tea is consumed not only as a beverage but also as folk medicine, and it is also earnestly prepared and served in ancestral rites. In addition, such various aspects of the tea culture formed as byproducts of preserving tea agriculture for a long period of time are closely connected to the lives of the locals and are passed down as parts of the agricultural knowledge system unique to Hwagae.

Land usage overcoming disadvantageous climatic and geographical environment to cultivate tea plants

Tea agriculture is conducted across the entire Hadong-gun, and what is unique about Hwagae-myeon's tea fields is that they are located on steep slopes of 30 degrees or higher. Such fields on the slopy area are natural tea fields where tea plants have nestled and naturalized in the region over a long period of time, adjusting to the local environment. The locals call them 'wild tea fields' or 'traditional tea fields'.

Traditional tea fields are formed by overcoming geographical conditions of the mountainous area and climatic limits related to the tea plant cultivation. Climatically, Hwagae-myeon forms a northern boundary line of the cultivation of tea plants in Korea, but Jiri Mountain, Hwagae Stream, Seomjin River and Southern sea formed a 'microclimate environment' which helped to overcome the climatic limits of the region. The forest blocked the cold wind, and Hwagae Stream and Seomjin River maintained the humid climate and optimal temperature developing the tea fields.

Traditional tea fields are formed on a small scale between rock cracks, under forest trees, near streams, and on the boundary of the forest without reclaiming the slopes. The locals of Hwagae have considered these climatic and



Photo 2. Tea field on slopes



Photo 3. Hwagae Stream, the water system of Hwagae-myeon

geographical conditions when they were forming tea fields on the slopes between streams and forests. Moreover, they scattered the seeds in the way native tea plants had been scattered naturally in order to form the tea fields, developing agricultural techniques and culture for the management of the fields that best suits the region's environmental conditions.

Since the region did not have much agrarian land, tea fields in Hadong have been also used for the cultivation of fruit trees such as chestnut trees, apricot trees and persimmon trees as well as forest products like bracken, besides tea farming. Various products such as Japanese apricot, chestnut, fatsia, and bracken from the tea fields served as an important means of living along with tea. This unique land usage has been preserved until now in the region, particularly around the traditional tea fields on the slope areas.

Cultural Landscape in harmony with Nature

Traditional hadong tea agriculture uses the 'natural agricultural method' that produces tea and manages the tea fields by minimizing artificial intervention. Fallen leaves and wild grass are used as environment-friendly compost which is called *Pulbibae* in Korean, and each tea leaf is handpicked (*Chaeda*). This traditional tea production method has been developed with the residents' accumulated knowledge of maintaining the region's ecological balance. The development of this method, although not thoroughly documented, has been carried out through the locals' observation on the growth of the wild native tea plants on the slopes of Jiri Mountain. Every process, from forming tea fields to producing and manufacturing tea, is done manually in the natural agricultural method. The unique land usage is attributable to the region's geography where tea fields are widely spread even in the forests on the steep slopes and crevices in the rocks, which made human access and the use of farming tools much difficult. From such limitations of the region, the natural agricultural method sprang up and developed. Thus, tea fields had to be managed with "natural agricultural methods," and this has formed the region's unique agrarian landscape and provided an ecological environment where various animals and plants could live.

In terms of the ecosystems, serving as the ecological axes between the forest and river, the traditional tea fields connect the habitats of the flora and fauna. They also accommodate and provide various species for the residents. Moreover, different types of habitats such as forests, tea fields on the slopes, rocky tea fields, residential areas and other farming areas, rivers, etc. have been preserved with the natural agricultural method for thousands of years, promoting the growth of tea plants. Furthermore, the tea plants in Hwagae display different characteristics depending on the environmental factors of the field: Those factors such as soil, altitude, surrounding flora, etc. even determines the tea's flavor. That is, each field in Hwagae tea shows genetic, ecological, scenic differences compared to other tea-farming regions where tea plants are usually homogeneous.

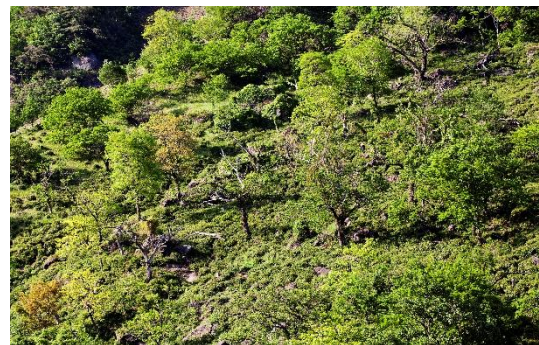


Photo 4. The wild landscape of traditional tea fields (tea plants grow among trees)

In terms of scenery, the traditional tea fields in Hwagae show differences compared to the fields in other major

tea-producing countries such as China and Japan. Tea plants in Hwagae’s traditional tea fields form colonies around the rocks and vegetation growing on the slopes. Thus, the region harbors vegetations with unique beauty where arbors and shrubs and forest covers grow in harmony with the surrounding landscape. The fields are not linear like normal terraced tea fields or flatland tea fields, but dispersed along the slopes separately. To further illustrate, the region features a wild landscape with the tea plants covered by a nearby forest as well as big and small rocks and relatively bigger shrubs hiding the tea plants.

While tea plants, which are evergreen shrubs, do not show any big differences themselves along with the change of season, the types and size of vegetation growing in the nearby forests or streams change the landscape. Such environment-friendly land usage is significant because it not only preserves the ecosystem in the mountainous areas but also creates the cultural landscape where tea fields, mountainous areas and vegetation harmoniously comingle.



Photo 5. Tea plants in symbiosis with bamboo

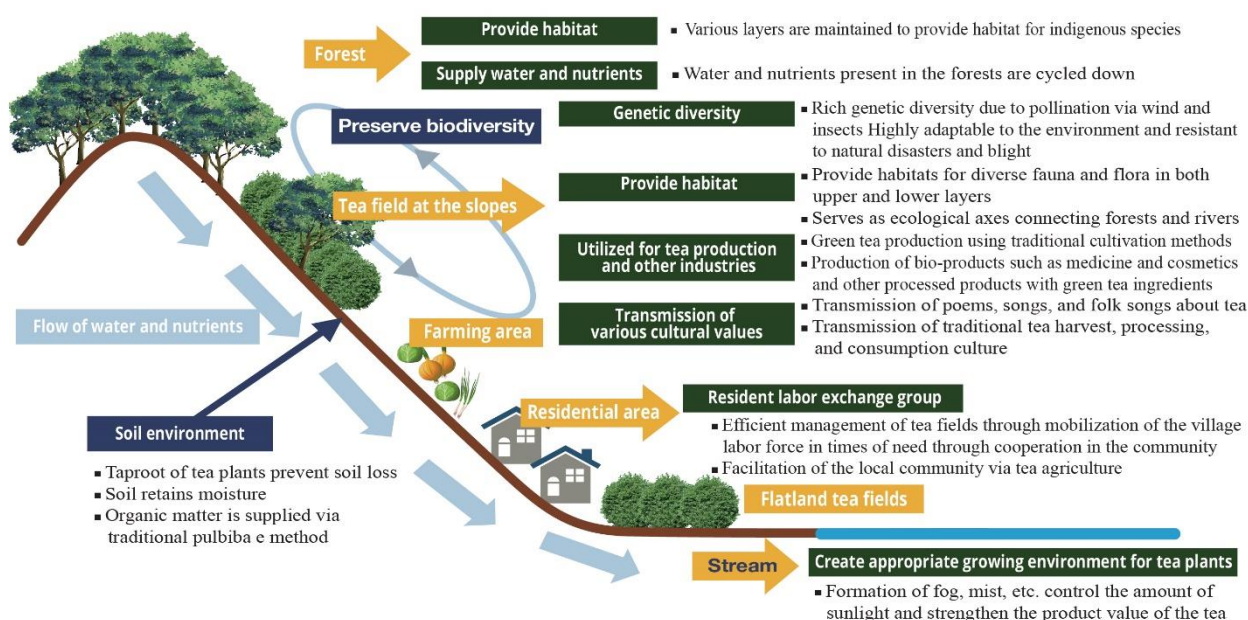


Figure 1. The ecological cycle in Traditional hadong tea agrosystem

Systemic conservation and utilization of cultural landscape formed by Traditional hadong tea agrosystem

Maintaining and conserving the Traditional hadong tea agrosystem is valuable not only as a way to maintain the biodiversity but also as a way to conserve and transmit the various tea cultures and develop the cultural landscape of the region. Hence, Hadong County Office has chosen Hwagae as a special management zone of tea agriculture and is providing technology support and education to strengthen the competitiveness of manufacturers and develop local experts. Moreover, Hwagae Traditional Tea Agriculture Conservation and Utilization Plan was established for systematic conservation and transmission of traditional tea leaves and tea culture, and Hadong

County Office, local experts, and the Hadong Tea Producers Council are working together on various conservation plans and publicity activities such as ‘Drinking Hadong tea’ and Hadong Wild Tea Cultural Festival.

In 2007, Hadong County Office founded the Institute of Hadong Green Tea which is pursuing research in various fields to provide tea farming regions with scientific management and support method. At present, Hadong County Office is designing plans to extend the traditional tea agrosystem, which is being carried out mostly in Hwagae, to the entire region and manage it. At the same time, the local government and residents of the agricultural heritage district are encouraging the local community’s understanding and participation in the conservation of the region’s agrarian environment and everyday cultures of a thousand years of history. They are also making effort to build momentum with the registration of Traditional hadong tea agrosystem as Globally Important Agricultural Heritage Systems (GIAHS).



Photo 6. Assigning Members of Hadong Traditional Tea Conservation Committee

2. Characteristics of Traditional Hadong Tea Agrosystem

2.1 Food and Livelihood Security

(1) Maintaining tea production by overcoming disadvantageous environment of mountainous region

Surrounded by Jiri Mountain, the entire Hadong-gun has a mountainous climate which has shaped the lives of residents, especially of those residing in steep mountainous areas with valleys set deep. Local residents usually built their houses on the mid-slope of a mountain away from the flooding river and made livings with forest products such as bamboo shoots, sedges, acorns, medical herbs and mugwort that grew in Jiri Mountain and with fish and salt gained from Seomjin River or the southern coast of Korea.



Photo 7. Hadong-gun encircled by Jiri Mountain

Furthermore, people in Hadong have developed distinct land usages with their unique agricultural methods that were adapted to the region’s mountainous geography. In highlands, fire-fallow cultivation was done, while on gentle slopes they cultivated rice. Those living in an area where farming was impossible made their livings by manufacturing products such as woodenware and silk with what they gained from the nearby forests. In local residential areas, beans, persimmons, chestnuts, pears, tobacco leaves and tea were mainly produced. Beans were eaten, while the other crops were sold in the market or bartered.

Although tea was considered a cash crop and harvested in the entire Hadong-gun in the past, most households in Hadong produced tea for their own consumption. However, in Hwagae and Akyang, northwest parts of Hadong, the local residents cultivated tea to make their livings.

Being a basin, Akyang had wide plains and agricultural fields, and the local residents produced various crops such as rice and wheat abundantly. Tea farming was also very popular with the influence from Hwagae which was very close to the region, and done near the residential areas and on the slopes. Tea plants were farmed in Akyang mainly to be used as beverage or fermented tea for medical use, but tea farming was huge in Akyang compared to other regions. People in Akyang opened a temporary market called



Photo 8. Akyang-myeon, the basin breadbasket

Jaeksal-jang around fall when they were running out of the tea leaves they had harvested in spring. In the market, a large number of tea-farming households from Hwagae and other adjacent regions participated, and the villagers of Akyang traded the remaining rice and wheat from the last harvest season with tea. Right before and after the independence from Japan (the 1940s), 0.6kg of fermented tea was usually traded with 144kg of rice. Among residents of Hadong, tea was considered more valuable than other common crops.

In contrast, farming was very unstable in Hwagae as 91%¹ of its geography was steep mountains and had Seomjin River flowing along its south and Hwagae River along the north and south, both of them often flooding during the rainy season. Also, the steep mountainous region lacked fields to cultivate, making it difficult to grow crops such as rice and barley. Thus, people made up for the shortage of food and everyday commodities by managing the wild tea trees living around Hwagae stream. Also, being one of the towns in Hwagae that had the largest number of temples nearby, it could gain tea leaves from the wild tea trees growing in the crevices of the rocks around the temples. Therefore, Hwagae residents made their livings through tea cultivation instead of rice cultivation, and this led the town to become the “most prominent tea-producing area” in Hadong-gun.

The residents cultivated tea fields and produced tea in the very traditional way without altering the agricultural environment their ancestors’ generations preserved. Unlike the tea farmers of other regions in Korea, Hwagae tea farmers are full-time, devoted professionals of tea agriculture. In 2015, 801 households out of 951 (84.2%) were engaging in tea farming, which took up 40.9% of all tea farming households in Hadong. Hwagae-myeon is Hadong’s core tea-producing area that produces 1,700 tons of tea annually, which makes up 87.8% of



Photo 9. Traditional tea field of Moam Village

Hadong’s annual tea production. In the nation, Hadong-gun produces the second largest amount of tea next to Bosung-gun, but the difference in their yields is rather big. This is due to the region’s traditional tea-processing method which is done manually and individually, making it difficult for a household to produce a large amount of tea. Even in Hwagae, Hadong’s largest tea producer, tea is produced by a peck of small, individual households rather than plantations, and the sales and distribution of tea is also done individually.

¹ Hwagae-myeon is 13,436ha in total and is a representative mountainous area of Hadong-gun with fields (274ha, 2.0%), paddies (345ha, 2.6%), earth (89ha, 0.7%), forest lands (12,194ha, 90.8%), etc. (534ha, 4.0%). (2015. 04)

Table 1. Tea cultivation and production status of Hadong-gun

Classification	Cultivation status			Production status (ton)	Revenue (hundred million won)
	Number of farmhouses	Number of lots	Area (ha)		
Total	1,956	6,509	1,014.9	1,973.9	225.73
Hadong-eup	207	434	63.6	28.3	16.44
Hwagae (Ratio(%))	801 (40.9)	3,837 (58.9)	597.8 (57.3)	1,734.0 (87.8)	154.57 (68.4)
Agyang	680	1,807	248.5	177.6	45.92
Jeongryang	110	111	18	2.2	0.56
Hoengcheon	22	45	11.3	3	0.77
Gojeon	18	38	19.3	0.6	0.15
Geumnam	3	7	0.5	0.6	0.15
Jingyo	1	1	0.1	0.1	0.02
Yangbo	11	15	10	0.3	0.07
Bukcheon	67	156	28.4	26.4	6.82
Cheongam	2	2	0.1	-	-
Okjong	15	23	12.1	0.6	0.15
Geumseong	19	33	5.2	0.2	0.51

※ Reference: Internal data of Hadong County Office (2015)

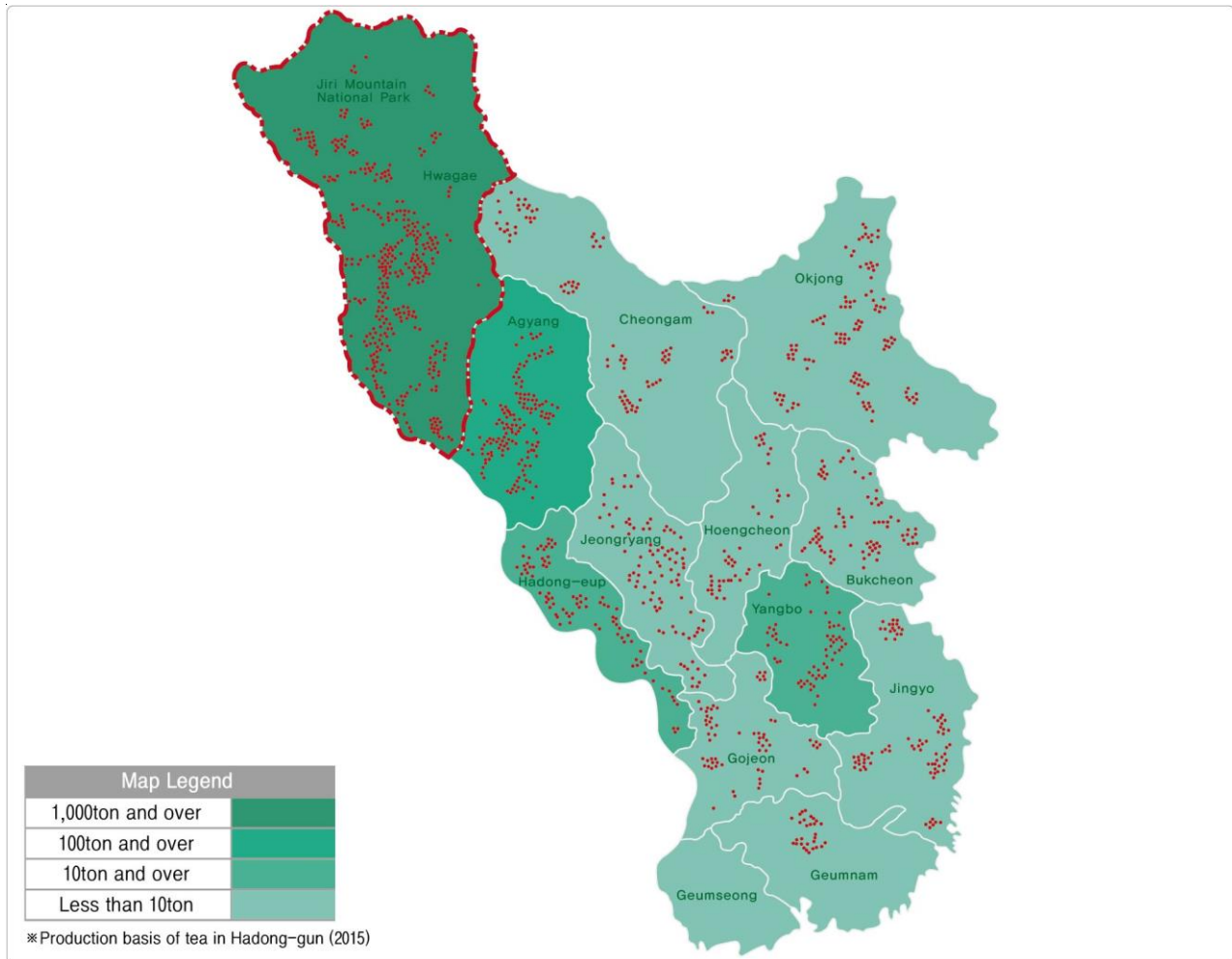


Figure 2. Production status of tea in Hadong-gun

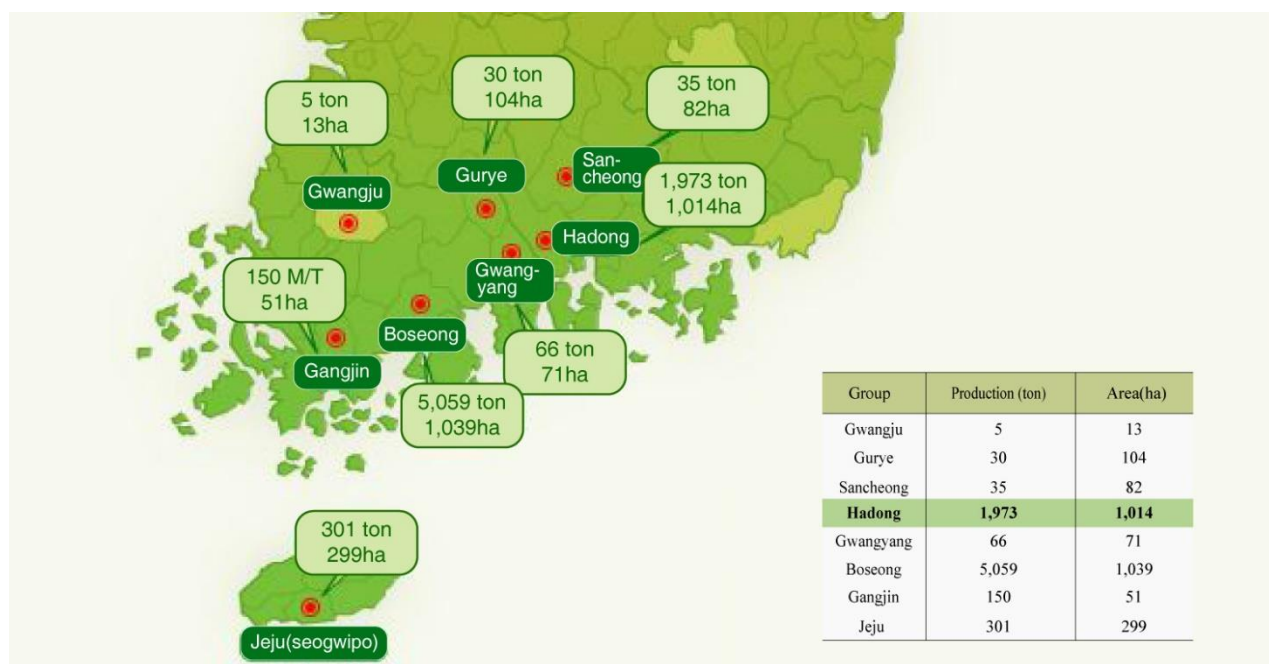


Figure 3. Production status of tea in South of Korea

(2) Changes and development of tea agriculture to maintain livelihood

Tea production of Hadong-gun continued to decline entering the Chosun Dynasty (1392~1910), which adopted Confucianism as its national ideology degrading Buddhism, levied heavy taxes, and went through frequent wars. With the development and spread of the agricultural techniques in the late period of Chosun Dynasty, Hadong region, where villages were mostly heavily influenced by surrounding temples, gradually became more secular as rice farming and dry-field farming methods expanded to the foot of Jiri Mountain. As people who lost their land during the Japanese colonial era (1910~1945) moved deep into the Jiri Mountain, forest and fields where tea fields existed were cleared for paddies and dry fields, and various crops such as persimmon trees and chestnut trees were planted. However, the original tea plant colonies were maintained because the reclamation was only done partially to obtain space to grow crops, not to eliminate the whole tea field. This is how the current tea field landscape of Hwagae was formed.

It was not until the 1960s after the Korean War that tea agriculture in Hwagae has become active again, as the society began to be stable and the region saw groups of people moving in from other regions and taking up the tea agriculture. Unlike the past when tea was produced on a national level or for religion, they took up producing tea as their profession. During the 1960s and 1970s, the Traditional hadong tea agriculture was mostly carried out by several farming households that owned tea fields, and tea fields were scattered sparsely to form a colony rather than concentrated together like today. Since only a small portion of households inherited tea farms from their ancestors, many households used the help from adjacent towns to manage the tea fields during busy seasons requiring intensive labor force, such as the harvest season. Even in the same region, the traditional tea fields of Sinheung Village and Moam Village were located in steep, rocky areas and therefore required a lot of manpower. While they produced about two tons of fresh tea leaf annually, the number of farming households with traditional tea processing craftsmanship was not enough to handle the amount, so most of the fresh tea leaves were sold at a low price. Harvested fresh leaves were usually bartered with rice and vegetables from nearby villages such as

Akyang or with fish and shellfish caught by the fishers of the Namhae region south to Hadong. Some were sold to the monks of the local temples such as Chilbul or Ssanggye Temple who also knew how to manufacture tea.

Traditional tea fields owned by the temples such as Ssanggye Temple were managed together by nearby villagers and monks, and monks taught farmers skills to manage tea fields and process tea to support and facilitate tea field management. In the 1980s, tea farming was spread to the general households with the nationwide increase of tea consumption. In the 1960s, tea production had been done by a small number of households, but as tea processing techniques were disseminated to the general households by Buddhist monks in the nearby temples from 1989, tea production and sales began to increase as well. Such expansion in tea production is continued to this day, and the tea-producing households carry out the entire process from harvesting to processing manually, although it is a difficult task. Households without tea-processing skills sell fresh tea leaves harvested by their neighbors.



Photo 10. Co-management of tea fields by monks and the locals

At present, putting the enhancement of quality before the increase of quantity, the local tea-farming households are pushing ahead with high-end strategies such as receiving organic food certification. Green tea is a highly lucrative crop which generates 2.25 million KRW per unit area (10a), which makes three times greater income than rice. The residents make livings by selling “green leaves” and “seasonal traditional tea” made with tea leaves picked in each season. In the past, the locals produced many different types of tea such as *Ujeon*, *Sejak*, *Jungjak*, and *Daejak*² according to when the leaves were harvested. However, the production nowadays is mainly focused on the high-quality hand-roasted tea made with leaves harvested from the harvest periods of mid-April and late April to early May, due to the difficulty in harvesting tea leaves growing on the rocky slopes³. As the demand for fermented tea consumed traditionally as folk medicine is on the rise, tea farmers are increasing the production of fermented tea as well.

In Hwagae-myeon, the modernization and industrialization of tea agriculture were established since the mass operation of tea fields began after the modern period. The hand-roasted tea production which was mainly dependent on the existing tea fields on the slopes were expanded to the flatland tea fields created near Hwagae Stream and promoted mechanization and modernization which are still underway. Tea leaves harvested in flatlands are used mostly for tea bags or green tea powder rather than traditional tea, and they take up 85.2% (1,681 tons) of the total tea harvest. This raises farm income which is not sufficient if they only produce hand-roasted tea. The quality green tea powder has been exported to countries such as the



Photo 11. Flatland tea fields formed around Hwagae Stream

² According to when the leaves were harvested, they are categorized into *Ujeon* (harvested around April 20th and the leaves are young and small about 1.5 to 2cm), *Sejak* (late April to early May), *Jungjak* (early May to mid-May), and *Daejak* (mid-May to late May)

³ This is because mechanization is difficult as the average tea cultivating area of the tea-farming households is 0.33ha, most of the tea fields located on steep slopes of mountains

United States and Mexico since 2016, and the region has also signed an export contract with the world’s largest coffeehouse chain Starbucks as well.

Tea agriculture in Hwagae used to be managed via service exchange and cooperation between farming household from harvesting to processing, but a division of labor was adopted with the introduction of tea production companies and processing facilities in the region. They are now separated into two; households that sell fresh tea leaves and tea production companies that purchase fresh leaves and process them. The number of tea production companies in Hadong increased from 22 in the 1990s to 174 today, and 93 of them are located in Hwagae-myeon. Most tea-processing companies in Hadong-gun carry out their entire processing procedures in the form of integral administration; that is, tea leaves are processed at their local processing facilities in the producing areas.

As such, there have been changes in the form of tea field management as tea agriculture industrialized and expanded to the whole region, but the residents are preserving the traditional agricultural method by succeeding it as a family business. Due to the conclusion of FTA with China and the development of the coffee industry, tea agriculture of Hadong is going through tough times as well. However, the local residents conduct the processing procedure manually, and besides increasing the amount of traditional tea produced in sloping fields, they are setting plans to revitalize the tea industry on multiple levels such as developing and advertising new processed tea products with green tea components and hosting tea festivals utilizing the beautiful views of tea fields. Hadong County Office is moving on to sixth industrial revolution⁴ that well matches globalization from the primary industry in collaboration with the local farmhouses. This movement has become active since the region’s designation as Hadong Wild Tea Special Industry Zone in 2006. The green tea industry is generating values of more than 100 billion KRW for the regional economy, and induces 56 billion KRW from the primary and secondary industry. The ongoing invigoration of tourism, which utilizes the beautiful natural landscapes of those tea fields and natural environments of Jirisan Mountain and Seomjingang River, is also in line with this effort made through the provincial policies.

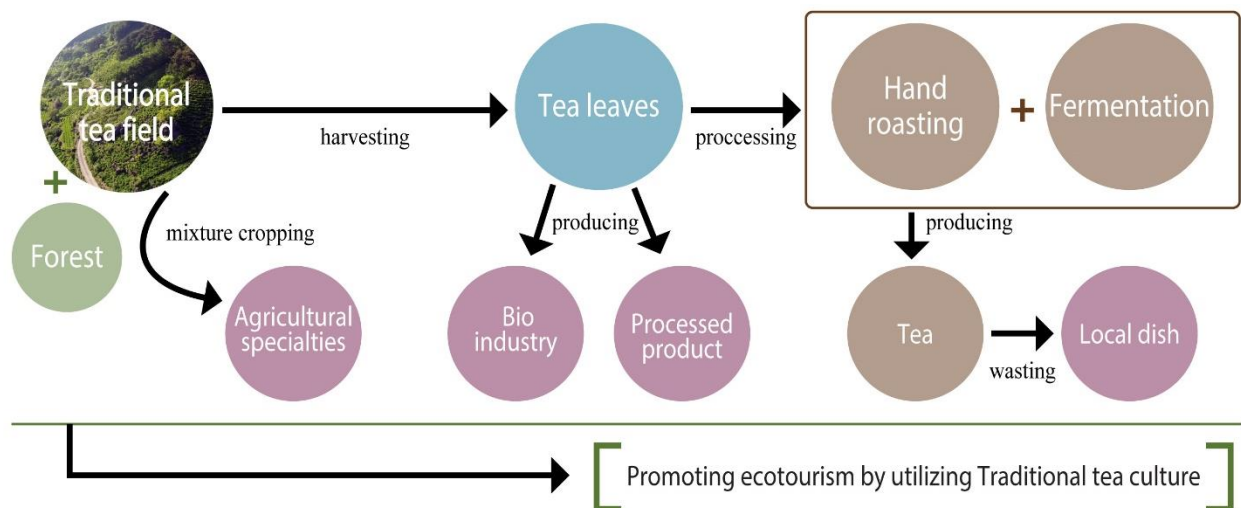


Figure 4. Roles of tea agriculture as a means of living

⁴ Senary (6th) industry: A complex industry which combines the primary industry (farming and fishery), the secondary industry (manufacturing, processing industry), and the tertiary industry (service industry) and generates a high added-value for a farming household

2.2 Agro-biodiversity

(1) Geology environmental factors apt for traditional tea farming

a) Environment Favorable to the Growth and Development of Tea Plants⁵

Thanks to its particularly favorable environment to grow tea plants, Hwagae-myeon alone produces 20% of the nation's total tea production. As it is a mountainous region, tea fields are located 220m above sea level on slopes of 10-40° facing south in the silty loam of pH 4.6 acidity and low clay composition. Moreover, the cold wind in winter is blocked by Jiri Mountain and its steep mountain pass while the warm wind blows in from Seomjin River and the South Sea, resulting in less frost and early budding of tea leaves. The daily temperature range is quite big at 15.4°C and the abundant water of Seomjin River and Hwagae Stream provide a long period of foggy days. The wet fog formed along the Hwagae Stream flowing from north to south cools the heat of the earth and keep the soil moist, providing the optimal condition to grow tea. Moreover, bamboo and other plants growing along with tea plants control sunlight exposure and contribute to the production of high-quality tea.

Recognizing such climatic conditions, the residents of Hwagae cultivate and manage tea through natural agricultural methods that do not harm the ecosystem. As a result, the tea fields around Hwagae Stream and the foot of the mountain exist in harmony with the surrounding natural environment, maintaining excellent biodiversity.

Table 2. Appropriate environmental condition for growing tea plants

Climate and environment	Temperature			Precipitation	Soil	
	Annual average	Lowest	Highest	Annual average	Acidity	Moisture
Appropriate environment to grow tea plants	13.0~16.0°C	-5.0~6.0°C ↑	34.0°C ↓	1,300mm ↑	ph4.5~5.5	90% ↑
Growth environment of tea plants in Hwagae-myeon	14.3°C	-4.4°C	32.7°C	1,711mm	ph4.8	90% ↑

b) The forest and vegetation of Jiri Mountain that effects the growth of tea plants

The native tea plant colony of Hwagae area grows in harmony with various natural vegetation and environmental conditions. They specifically grow near the primeval forest and are naturally scattered among rocks and deciduous tree species such as persimmon tree, chestnut tree, and the apricot tree. Such land usage of traditional tea field enhances interaction between forest vegetation and tea plants, affecting the growth of tea plants in the following ways.



Photo 12. Traditional tea field near the forest

⁵ Reference: Suggested Annexes 3) Disperse pattern of traditional tea fields in Hwagae-myeon (altitude, soil drainage, slope, direction analysis map)

First, the forest near the tea field forms an optimal environmental condition for tea production. Tea fields are located in the middle of the footslope and are affected by microclimate factors developed from the higher forest area. The forest blocks the cold wind from the mountain ranges in winter and keeps the warm wind from Hwagae Stream and Seomjin River, reducing frost damage and maintaining the optimal temperature to grow tea plants. Also, the area where traditional tea fields are located has a large daily temperature range, which is another condition to produce high-quality tea.

Second, the forest plays a big role in maintaining good soil condition to grow tea. The locals say that in late fall when tea farming is mostly done for the year, they pick up dry twigs and leaves from the mountain and spread them in the furrows of the field. This is because tea leaves and byproducts of twigs from harvesting and pruning are not enough to keep the soil fertile. The leaves and twigs from the forest supply the lacking nourishments. Also, they work as a natural herbicide and stop the plants that hamper the growth of tea plants from entering the fields as well as stopping the tea plants from spreading into the forest.

Third, the vegetation structure contributes to the species diversity of tea plants growing nearby. In traditional tea fields, a clear boundary between the tea field and the forest does not exist. Thus, the composition of the soil's component and content becomes slightly different depending on the type of vegetation that forms the flora together with the adjacent forest and tea trees, and this subtle difference in the soil's condition eventually affects the tea trees which have gained their nutrients from the soil. According to the research done by the Institute of Hadong Green tea, tea from the high altitude tea fields where many broadleaf trees with strong fragrance grow in the forest nearby contains more refreshing scent of flowers and fruits when roasted. However, tea from the flatland or lowland fields that have fewer factors related to the forest had no significant changes in its taste and aroma. It is also confirmed that tea will bear different aroma such as a noble fragrance, fragrance of tangerine, or the fragrance of chestnut tree according to what vegetation (chestnut tree, bamboo tree, etc.) forms colony with tea plants.

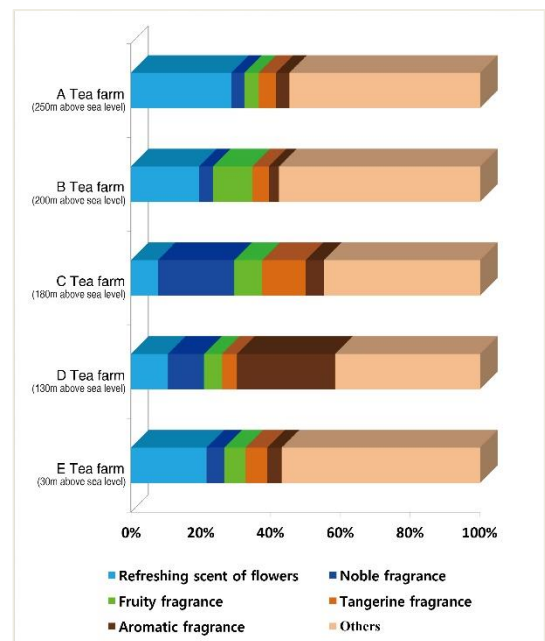


Figure 5. The research on relationship between the altitude and vegetation structure and tea aroma

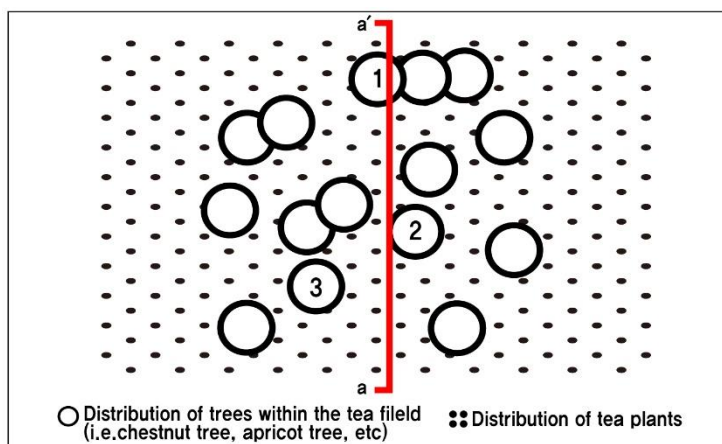
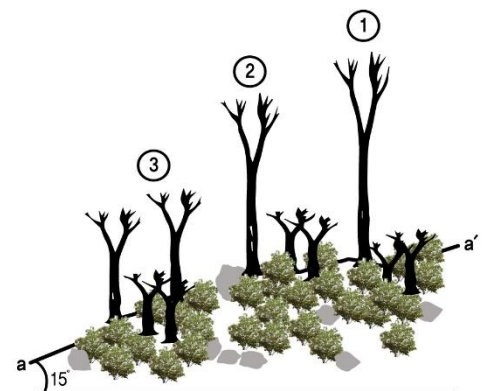


Figure 6. Community structure of tea plants in traditional tea fields and arbors/shrubs



c) Inhabitation of native tea plants that adapt well to the environment

After the 1950s, the improved species of Japan (Yabugita) and new technology were diffused in tea producing regions of Korea. This was when large scale tea farms in Jeonnam, Bosung, and Jeju were created. However, Hwagae-myeon was able to maintain the traditional method without going through any big changes in tea agricultural method, because this area is located on steep gorges which is not a suitable geographical condition to grow improved species of tea plants from Japan.

Most tea plants in Hwagae region originated from the indigenous tea plants that grew near the temples such as Ssanggye Temple and Chilbul Temple. While they are close to the small leaf species of China⁶, they are more localized through adaptation throughout a long period of time. Native Tea Trees can be classified according to the type of propagation. Tea plants that are sowed by seedling propagation (Type 1) are taprooted (a characteristic of its root growing deep down the soil which improves the plant's nutrient uptake), and has strong resistance to natural disasters such as drought, frost and blight. Particularly adaptable to the region's soil and natural environment, these plants grow well in the crevices of the rocks on slant mountains and gravelly fields. The other plants that are seeded by vegetative propagation (Type 2) are horizontal-rooted, making the plant grow horizontally to the surface, and hence more appropriate for flatlands or leveled lands. Type 2 plants have been observed in the region as flatlands were made in some parts. Since tea leaves of Type 2 plants are thin and soft, they are inappropriate for Hwagae's traditional tea making method and thus used as the ingredients for processed products such as green tea powder.

Type 1 plants are the dominant native plants of the region, which enabled the residents to overcome the region's natural environment that made artificial management difficult and to develop the current unique land usage that is suitable to the land. Through genetic analysis, Institute of Hadong Green Tea has recently verified that the native tea plants are of different species compared to their Chinese and Japanese counterparts. The samples were collected from the Oldest Tea Tree, two plants from the first tea field, two plants from the Hwagae tea plants, seven species of Japanese tea plants, and three species of Chinese tea plants. The DNA were successfully separated, making it possible to pick out the characteristic DNA marker—Primer A19—from the Oldest Tea Tree and the Hadong tea plants. The collected DNA samples showed that Hadong tea plants were divided into Chinese and Japanese groups, with the Oldest Tea Tree in the Japanese group and the plants from the first tea field in the Chinese group. Therefore, it is logical to say that Hadong tea, Chinese tea, and Japanese tea plants have all originated from the same ancestor and Hadong tea plant came to have diverse and unique genetic characteristics due to isolated cultivation in a mountainous area for a prolonged period of time. The native tea plants are pollinated by insects and the wind, making genetic mutation easier to happen. During the mutation, inferior genes disappear naturally and the superior genes prevail by adapting to the environment. After such process is repeated over time, the superior species fully adapted to the local environment emerges and different tea plants appear in different parts of the same region.

⁶ Most small leaf species of China have oval tea leaves, but leaves of Hwagae tea plant vary, for the plants have divided and adapted to the environment of the region for a long time

The genetic characteristics of the tea plants are deeply related to hand roasted tea manufacturing method. It is not possible to harvest the leaves all at once even in the same field since they consist genetically different species although the outward difference is very difficult to discern. The harvest must instead be done by categorizing genetically similar species. Since harvested leaves have different qualities and moisture content, some will be half-cooked and some will burn if roasted together by machines, making it impossible to produce high-quality tea. To solve this problem, the locals have developed and continued the method of hand roasting little by little in a kettle.

Table 3. Comparison of the characteristics of tea trees cultivated in Hwagae-myeon

Species		Propagation	Root	Strength	Weakness
Type1	Small leaf species of China (Native species)	Seedling propagation	Taproot	-Deep roots make it more resistant to drought and the cold and make it easier to manage after sowing -Genetic mutation from environmental adaptation makes it more resistant to environment change or blight	-Different genotypes make the plants uneven, making it inappropriate to use mechanical management -Lower productivity than improved species
		Vegetative propagation	Horizontal root	-Equal tea species makes cultivation management easier -Can harvest tea leaves of even quality -The productivity and earnings rate are higher than native species and are apt for mass production	-Short roots make it easier to be damaged by the cold in the early stage. Care required after sowing. -Genetic vulnerability makes it harder to adapt to the environment or blights



Photo 13. Native Tea Trees



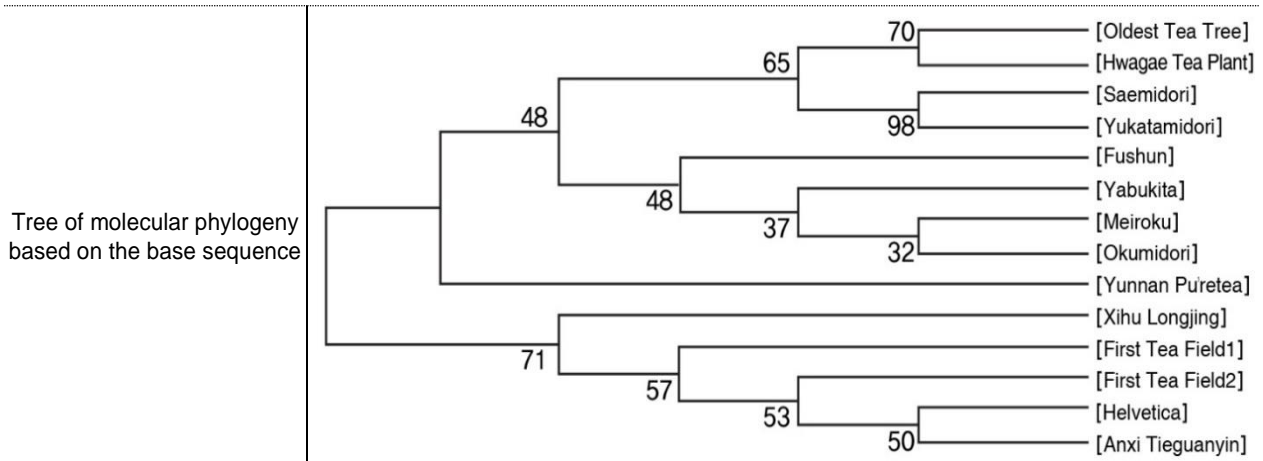
Photo 14. Type1's tea plant root (taproot)



Photo 15. Type2's tea plant root (horizontal root)

Table 4. Genetic analysis results of tea plants in Hadong, China, and Japan

Classification	Analysis results	Legend
Genomic DNA separated from the live leaf		1: Oldest Tea Tree 2: First Tea Field 1 3: First Tea Field 2 4: Yabugita 5: Fushun 6: Okumidori 7: Saemidori 8: Xihu Longjing 9: Anxi Tieguanyin
DNA marker of Hadong tea: Primer A19		1: Oldest Tea Tree 2: First Tea Field 1 3: Xihu Longjing 4: Anxi Tieguanyin 5: Yabugita 6: Fushun 7: Meiroku 8: Saemidori 9: Okumidori 10: Yukatamidori 11: Asanoka



※ Reference: Analysis on Molecular Phylogeny and Development of Molecular Markers of Hadong Tea (*Camellia sinensis* L.), Kim Jong Cheol, Institute of Hadong Green Tea (2009)

(2) Biodiversity⁷ in the Traditional Tea Fields

Hadong's geography has mountains, sea, river and flatlands distributed over the region, with its north-west surrounded by Jiri Mountain, the south by the Southern Coast, and the west by Seomjin river. Moreover, the country's first national park and a treasure trove of nature's wildlife, Jirisan National Park, is spread across Hwagae-myeon and Cheongam-myeon of Hadong-gun. The southern sea is also designated as Hallyeohaesang National Marine Park and thus preserved systematically. These altogether contribute to the entire region's diverse fauna and flora.

According to Korea National Park Service's annual report, Monitoring Investigation of the resources of Jiri National Mountain, currently there are 18 different species of mammals, 36 of birds, 9 of amphibians, 11 of reptiles, 31 of fishes⁸, 142 insects and 74 of benthic macro-invertebrates. Furthermore, there are 1,526 species of plants. Among them are one protected species, 15 endangered species, 107 Korean endemic species, and 27 naturalized species. The flora can be divided into 6 major colonies and others, which are the Korean Fir, the Mongolian Oak, the Oriental Oak, the Pine Tree, the Queritron, the Horn-beam and so forth. These colonies make up Hadong's ecological characteristics and affect the formation of Hwage-myeon's ecosystem. Especially Jiri Mountain, which encircles the region, Seomjin River, and Hwagae Stream that runs from the north to the south of the region altogether serve as the habitats of various animals and plants, continuously affecting the neighboring ecosystems.

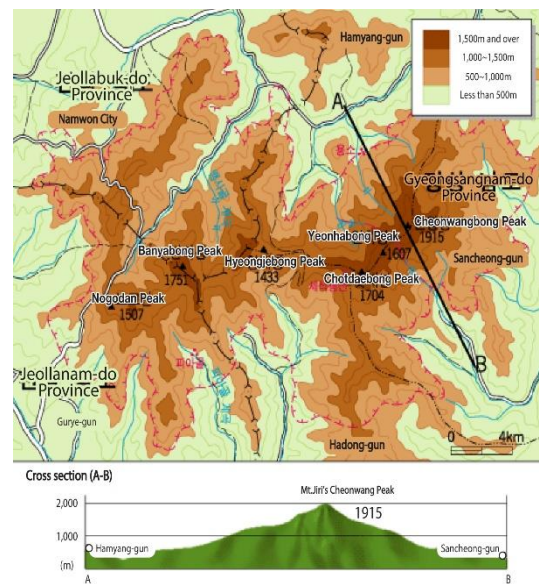


Figure 7. Map of Jiri Mountain National Park

⁷ Reference: Suggested Annexes 4) List of Biodiversity

⁸ Fish in Hadong are largely divided into freshwater fish (Hwagae Stream, Agyang Stream, and Seomjin River) and sea fish (The south coast)

a) Flora

Located in the warm and wet southern part of the Jiri Mountain National Park, there are colonies of Asian hornbeam all over Hwagae region. On the outer valley area outside tea farms are colonies of loose-flower hornbeam and queritron. In the Neodeol region, there are Manchurian ash trees and dogwoods forming colonies, and in relatively dry regions below 900m above the sea level are colonies of oriental oaks. In the exposed and dry area around the mountaintop and ridges are pine trees, and at 1,400m above the sea level are Korean fir forming colonies. As the altitude gets higher, the wind becomes stronger, deforming the exterior of arboreal trees and creating deformed trees. On the top of the mountain, colonies of shrubbery such as Hairy Korean rhododendron, royal azalea, Erman's birch and *Betula* are distributed.

In traditional tea fields, there are various Pteridophyta including Long-tail spleenwort, Baby buckler fern, Oriental ladyfern, and Asian common ladyfern growing in the region. This is because water pipes of tea plants provide a good environment for these plants.

There are 19 orders, 59 families, 150 genera, 187 species, 27 varieties, and 1 breed of Tracheophytes found in the lower stream and estuary of Seomjin River. Among these are four types of Pteridophyta including the Long-tail spleenwort and two types of gymnosperms in the pine tree family including the pine tree and the Japanese black pine. Among angiosperms are 137 types of dicotyledonous plants and 42 of monocotyledonous plants.

Table 5. The flora status in Hwagae-myeon

Classification		Order	Family	Genus	Species	Varieties	Breeds	Total
Total		19	59	150	187	27	1	215
Club moss		1	1	1	2	-	-	2
Scouring rush		1	1	2	2	-	-	2
Gymnosperm	Cone	1	2	3	4	-	-	4
Angiosperm	Monocotyledon	5	8	34	42	7	1	50
	Dicotyledon	11	47	110	137	20	-	157



Photo 16. Fir clubmoss

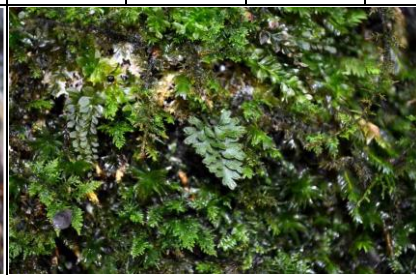


Photo 17. Small Makino fern



Photo 18. Evergreen spleenwort



Photo 19. Shiny autumn fern



Photo 20. Naejang twinsorus fern



Photo 21. Petiolate tongue fern

b) Fauna





Mammals found in Hwagae are raccoons of the family Canidae, wildcats and cats of the family Felidae, weasels, martens, badgers, and otters of the family Mustelidae, Asiatic black bear of order Carnivora, elk, roe, and deer of the family Capreolus, boars of family Suidae, moles of order Insectivora mole family, hedgehogs of order Insectivora family Erinaceidae, Korean hare of order Lagomorph family Leporidae, Striped field mouse of order Rodentia family Muridae, and Eurasian Red Squirrel and squirrels from the family Sciurine. In Hwagae, Daesung Valley of Hwagae-myeon shelters the largest number of mammals, and the inhabitation of lynxes and sables are traced in Beomwang village and Tokki-bong Peak.

Traditional tea fields form a natural shrubbery and provide habitats for various species of insects and spiders as well as resident birds such as the great tit, marsh tit, and parrotbill that dwell and feed in shrubberies, keeping the population and promoting biodiversity. There are various species found in the mouth of Seomjin River including the three second-class endangered species of Chinese merganser, Korean buzzard, and Eastern curlew and ten specific species of *Butastur indicus*, cuckoo, swift, house swift, common Indian kingfisher, black-capped kingfisher, bluebird, grey-headed woodpecker, Zitting Cisticola, and nightingale. Looking at certain periods of the year, different birds are observable during the migration season, the breeding season, and the hibernation season, which is when most of the birds can be seen. If tea fields disappear, insects and birds who live there will as well, showing that maintaining tea farming is crucial in keeping the biodiversity of this area.

The water system of Seomjin River is composed of Masan Stream from Masan-myeon, Gurye-gun, Yeongok Stream of Toji-myeon, Gurye-gun, and Hwagae Stream of Hwagae-myeon, Hadong-gun. Except for the stream closest to the main stream of Seomjin River, the streams flow over big rocks and pebbles. In these waters, the dominant species is *Majusculus* and the subdominant species are dace followed by the minnow. Among the freshwater species, there are seven migratory species of eel, dace, sweetfish, salmon, gray mullet, sea perch and freshwater trident goby. Most fish are in the family Cyprinidae of the order Cypriniformes. Indigenous species of Korea include oily bitterling and Korean bitterling, a legally protected species. There are no fish species designated as foreign species that may disturb the local ecosystem, and recently, a colony of *Sesarmops intermedius*, a second-degree endangered species designated by the Ministry of Environment, has been found in Sinwol marsh near the mouth of Seomjin River.

Amphibians found in the tea fields include salamander, red-bellied frog, toad, green frog, Korean frog, North mountain frog, ranid and bullfrog. As for Reptiles, freshwater tortoise, lizard, Amur grass lizard, cat snake, rat snake, Asian tiger snake, red banded snake, red-tongue pit-viper and Korean mamushi were found. Among them, the Freshwater tortoise is a second-degree endangered species designated by the Ministry of Environment.

Table 6. The fauna status in Hwagae-myeon

		
Photo 22. Raccoon	Photo 23. Otter	Photo 24. Sesarmops Intermedius
		
Photo 25. Oily Bitterling	Photo 26. Fresh Water Turtle	Photo 27. Bluebird

c) Agro-Biodiversity: Agricultural Products Cultivated with Tea

Traditional tea fields of Hwagae region are scattered along the rocky slopes of Hwagae Stream unlike the terraced fields of China, Japan, and Boseong-gun of Korea, and it lets deciduous plants such as persimmon, chestnut, and bamboo tress grow along with the tea plants. Such co-existence has a great effect in maintaining the livelihood of the locals. Maple sap, chestnut, bracken, fatsia, and Japanese apricot of Hwagae are produced in the tea fields or in the nearby forests. Those agricultural products were at first cultivated for the residents' own use rather



Photo 28. Chestnut trees growing in the tea fields

than for sales after busy seasons, but over time they have been diversified by the locals who were looking for the crops that were suitable to the mountainous climate. In Hwagae, as the nation's tea industry recessed in the early 2,000s, the local farmers started to cultivate alternative crops in place of tea and their cultivation area and volume have increased. As their cultivation expanded, so did the cultivation area and amount, but this also led to a downscale of tea fields.

Table 7. Production status of major agricultural products grown with tea in Hwagae-myeon

Groups	Tea	Maple sap	Chestnut	Bracken	Fatsia	Japanese Apricot	Rice
Cultivation area (ha)	598	2,621	425	155	20	52	12
Amount produced (ton)	1,734	817	850	59	34	613	56

※ Note: Maple sap, chestnut, bracken, fatsia, and Japanese apricot are mostly cultivated together with tea plants, thus the number on the graph does not show the cultivation area of a single crop



Moreover, Hadong-gun produces various agricultural products besides green tea thanks to its diverse agricultural environment. The whole farmland is 11,105ha (8,263ha of rice paddy and 2,842ha of non-rice paddy). The proportion of food crops (20%) is lower than that of fruits (25%) such as chestnuts, strawberries, persimmons and pears, and vegetables (40%) such as lettuce, paprika and pepper. The production of special crops including green tea accounts for about 15% of total agricultural products. Especially, in the area where Jiri Mountain is in contact, green tea, Daebonggam(a species of persimmon), and chestnut are cultivated. In the sandy region of the Seomjin River basin, cultivation of pear is specialized.

At present, 870.6ha of Hadong’s agrarian field is used for cultivation and management of crops in an environment-friendly way, and they are expanding the environment-friendly area.

Recently, Hwagae-myeon has declared the “No Pesticide Policy” and been applying the eco-friendly farming method to all agricultural products and forest products.



Figure 8. Distribution map of Hadong-gun’s major agricultural products

Table 8. Production status of Hadong-gun’s major agricultural products (the total agricultural population: 38,872 people)

Crops	Number of farmhouses	Area (ha)	Production status (ton)	Revenue (one million won)	Period of production	Cultivation areas
Tea	1,956	1,014	1,973	22,570	Apr. – May	Hwagae, Agyang
Strawberry	470	210	7,455	44,100	Nov. – Apr.	Okjong, Hoengcheon
Lettuce	233	137	6,743	7,979	Oct. – Apr.	Hadong, Jeongryang

Watermelon	250	170	2,750	10,615	Mar. – Jul.	Hadong, Jeongryang
Chives	95	47	2,750	9,159	Nov. – Apr.	Okjong, Jeongryang, Bukcheon
Seasoned aster	688	111	2,106	5,700	Jan. - May	Jeongryang, Cheongam
Garlic	2,638	180	3,180	7,700	May	Geumnam, Jingyo
Pear	205	218	3,035	10,906	Sept. ~ Oct.	Hadong, Agyang
Sweet persimmon	354	159	3,376	4,495	Oct.	Jingyo, Jeongryang, Agyang
Japanese apricot	1,531	393	7,411	5,510	May – Jun.	entire area
Astringent persimmon	1,264	648	538	9,017	Oct. – Nov.	Agyang, Hoengcheon, Okjong

※ Reference: Internal data of Hadong County Office (2016)

Even though Hadong-gun is a typical mountain village, Seomjin River to the south provides various fish and shellfish such as corbicula, gizzard shad, sweetfish, yellow mullet, and horse-shoe crab, developing related fishery and food culture (shellfish soup, raw corbicula dish, corbicula pancakes, sweetfish sashimi, and grilled sweetfish) as well. Until the 1980s, during the market season, residents of Hadong carried a full bucket of *Jaechep-guk* (shellfish soup) on their heads all the way to the market and sold it to the shoppers. In the past when there was not much food to eat in daily lives, the residents made *Jaechep-guk* to nourish their family members in May and June as they started to catch shellfish.

(3) The effect traditional tea cultivation has on biodiversity

a) Maintenance of the Natural Ecosystem: Formation of Traditional Tea Fields that Utilized the Natural Slopes⁹

One thing that is characteristic about traditional tea fields of Hwagae-myeon is that these fields were formed by utilizing the mountainous area surrounded by Jiri Mountain and such formation minimized the deformation of the natural environment and rather kept it as it was. Most traditional tea fields are distributed along the mountain slopes at 100-400m of altitude along the Hwagae Stream. They are especially concentrated in the 300-400m altitude, and there are some tea fields located at altitude of 800m. Most of Hwagae-myeon is composed of mountain slopes at 60° angle, which take up 82.7% of the total area. The rest are composed of forest slopes (11.4%), alluvial fans and valleys (3.3%), hills and hillocks (0.8%).



Photo 35. The Slopes' Traditional Tea Fields

⁹ Reference: suggested annex 2) Tea Cultivation Status in Hwagae-myeon

As one goes up Seomjin River starting from *Buchun-ri* and *Deokeun-ri* tracing back the path of Hwagae stream towards *Daesung-ri*, the altitude increases, and there are many tea fields around Hwagae Stream, in the steep slope slanted 30° or higher. Moreover, the topsoil in Hwagae-myeon is composed of 80.1% sandy loam and 19.7% of loam. The tea fields are mainly located in the sandy loam area, which provides decent drainage favorable to the growth of tea trees. The traditional tea fields have a characteristic scenic view in harmony with level tea fields which started to be cultivated about ten years ago. The formation of such views is based on the region's Natural agricultural method, the management of tea fields using environmental-friendly methods.

Table 9. Terrain distribution in Hwagae-myeon

Groups	Area (m ²)	Ratio (%)
Mountainous regions	110,678,587	82.7
Forest slopes	15,279,116	11.4
Alluvial fan / Valleys	4,477,775	3.3
Hills / Hillocks	1,126,630	0.8
Flat inland area	433,862	0.3
Riverside	7,410	0.1
Others	1,855,194	1.4

※ Reference: Research on the Collection, Preservation, and Trait Evaluation of Forest Bioresources, Institute of Hadong Green Tea (2016)

b) Charactersitics of the Traditional Tea Fields: The Ecological Axis that Connects Different Habitats

The land usage of Hadong-gun shows a characteristic that forests, tea fields, bamboo forests, farms, towns and rivers are located on slopes. Such land usage prolonged for a long time made them have different environmental characteristics and become a habitat for various flora and fauna. The formed habitat provides a place where a variety of plants, insects, and animal species such as birds, mammals, amphibians, reptiles, and benthic invertebrates can live and also promotes species diversity. In particular, traditional tea fields form natural shrub lands which are inhabited by various insects and spiders, and serves as the habitat for the resident birds such as great tits and marsh tits while contributing to the maintenance of their population.

The movement, importation, and migration of species are very easy because traditional tea fields connect habitats of different characteristics. Tea fields are especially different from normal farmlands in species of trees. Tea manufacturing is not much influenced even when other taller or shorter vegetation grows among tea plants which are shrubberies. This characteristic is distinctive in traditional tea fields distributed near forests, farmlands, and residential areas. In most tea fields, both forest edge vegetation and those that grow in residential areas or on farmlands can be found. The residents of Hwagae have valued Jukro tea produced under a bamboo or northern bamboo trees, and tea produced under apricot trees. In the majority of the tea fields, one can observe a mix of the vegetation that appears in mountainous areas and the one usually shown in fields and residential areas. There are many pteridophytes including long-tail spleenwort, Baby buckler fern, Oriental ladyfern, and Asian common ladyfern. This is related to customs of treasuring bamboo and apricot trees, but it is also because these trees influence the growth of tea plants, resulting in different taste and aroma of harvested tea.

Such characteristics of Hwagae’s traditional tea field should be understood from a ‘diversity and relationship of the ecosystem’ point of view. Connected different types of habitat enabled easy interaction of various species to form and maintain a complex food web of the ecosystem. The distinct agricultural land usage with a history of over a thousand years is significant in aspects of maintaining agricultural biodiversity and forming tea agriculture landscape.

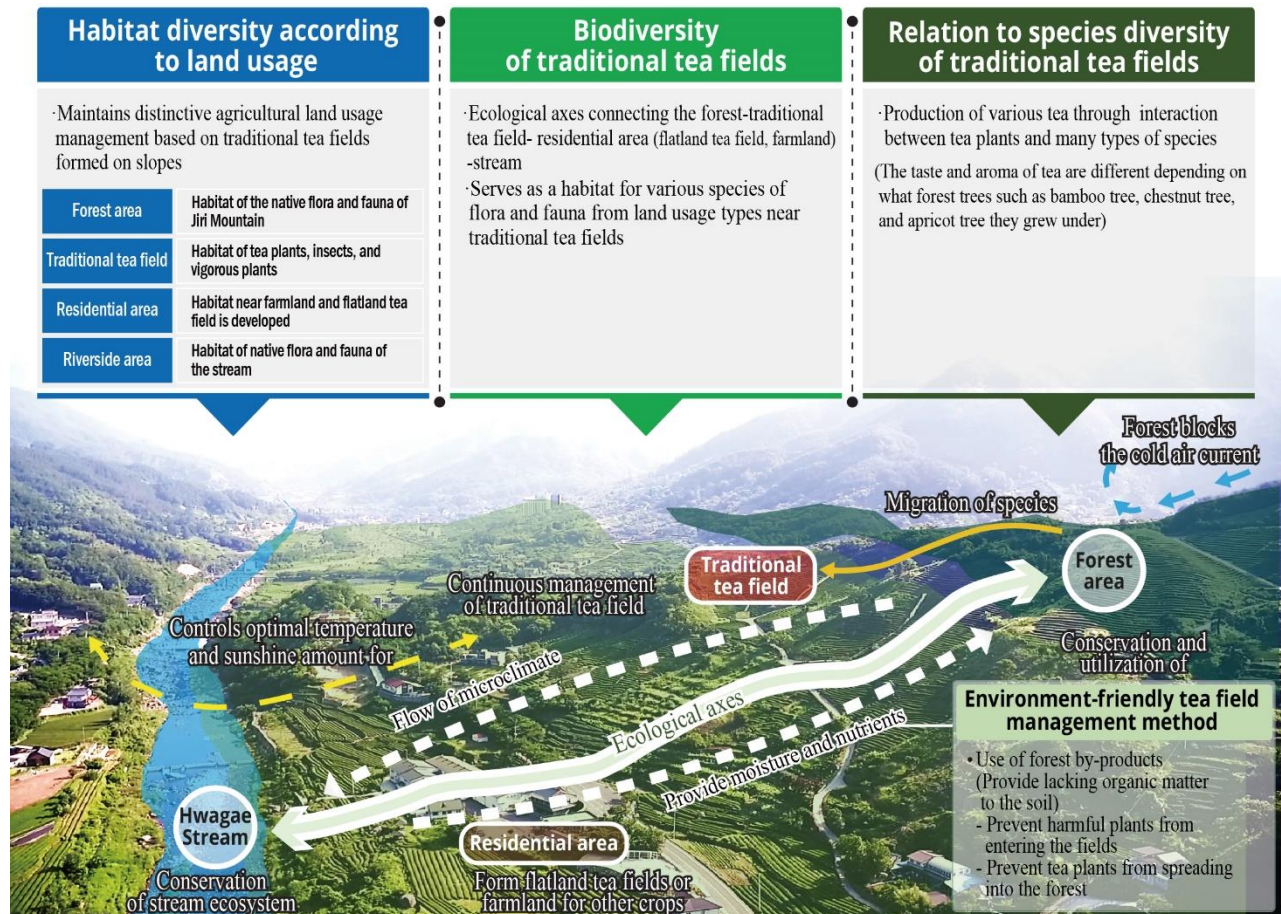


Figure 9. The relationship between traditional tea farming and biodiversity

2.3. Local and Traditional Knowledge Systems

(1) Managing tea fields with natural agricultural method

Management of the traditional tea fields on the slopes was not an easy task for local people. One major difficulty was that managing those fields required a workforce that was two or three times bigger than managing the fields on the level ground as the tea plants grew in the crevices of the rock of the slopes and formed an atypical colony connected to adjacent forests. Despite such disadvantageous geographical conditions, however, the residents could effectively manage the tea fields with the tea trees that have naturalized in the region and the natural conditions favorable to their growth such as climate and soil.

Generally, management of tea fields involves soil management, *Jeongji* (lop a tree) and *Gaengsin* (pruning), *Shibi* (fertilizing), weed control, and covering the soil for winter. In Hadong, however, the locals minimize artificial management and only conduct basic management procedures such as *Gaengsin* and *Shibi* for the reasons discussed earlier. The adoption of the minimum management is to prevent the forest succession and provide the nutrients essential for the growth of the tea trees.

Gaengsin, the pruning process, refers to the act of cutting the upper part of a tea tree into a linear, hemispheric or arch shape. It is generally considered the most important step in tea agriculture, as it plays a crucial role in increasing the yield and quality of tea leaves. *Gaengsin* is conducted in the middle of May to the plants whose growth need fostering, rather than to every tree. As for *Shibi*, fertilizing, people usually pick the weeds off or cut the surrounding grass and put them under the tea plants in place of manure. This process, known as *Pulbibae* (grass compost), is carried out using the leaves and other by-products of the branches that had fallen during the harvest and *Gaengsin*. This prevents the acidification of the soil, moisture evaporation, leakage of organic matter, and damage by frost. Also, the thick sedimentary layer formed with *Pulbibae* hampers the growth of weeds that negatively affects the growth of tea trees. Besides the use of *Pulbibae*, the locals have also used by-products from the adjacent forests such as dry branches and leaves to manage the soil. These days, however, with the shortage of manpower caused by the increased demand for cultivation, some farms are starting to replace the organic compost with artificial fertilizer. Although using chemical fertilizer or agricultural pesticides may help to boost the growth of tea plants and increase the yield, the majority of farms are still using *pulbilbae* rather than chemical fertilizer since it can cause genetic mutations to native breeds and make them lose their wilderness which forms their own characteristics.

The local community calls the management of traditional tea fields carried out in this way natural agricultural method (*Ja-yeon Nong-beob*)¹⁰. Such method was learned by the locals through their own experiences of managing Hwagae's tea trees for generations. Thus, natural agricultural method is a process that creates the most suitable conditions for the production of high-quality tea in the region's challenging natural conditions. The methods have been systematized in the region since Goryeo Dynasty (918~1392) when tea agriculture became popular up to now.

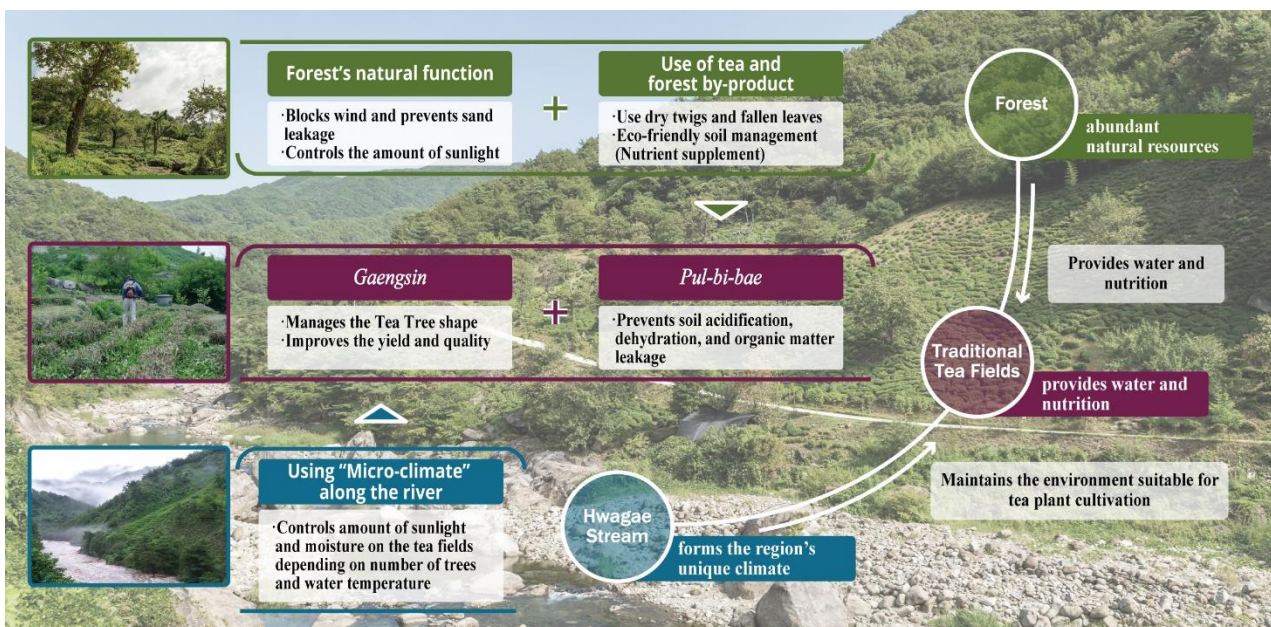


Figure 10. The natural tea agricultural method of Hwagae region

¹⁰ Natural agricultural method is a method conducted in four steps. First, create tea fields by minimizing the artificial land clearing and utilizing the geographical and ecological characteristics of the area. Second, seed propagation is applied instead of propagation by cutting. Third, pesticides and chemical fertilizers are not used. Fourth, tea cultivation, management, harvesting and processing are performed by hand rather than by machine. The development of natural farming methods in the Hwagae area is due to the natural conditions suitable for tea cultivation, and residents understood these environmental benefits and applied them.

Table 10. Comparison of cultivation and management between tea fields in Hwagae-myeon and other regions

Classification	Traditional tea fields	Other tea fields
Soil management	<i>Pulbibae</i> (Grass compost) (July~August / September~October using by-products of forests)	Fertilizing and plowing (March / July~August / September)
Tree shape management	<i>Gaengsin</i> (Pruning) and <i>Jeongji</i> (February~March)	<i>Gaengsin</i> (Pruning) and <i>Jeongji</i> (February~March)
Preventing and eliminating weeds	Weeding (February~March)	Weeding (March / October)
Preparing for winter	–	Installing wind shields, spreading hay, etc (November)

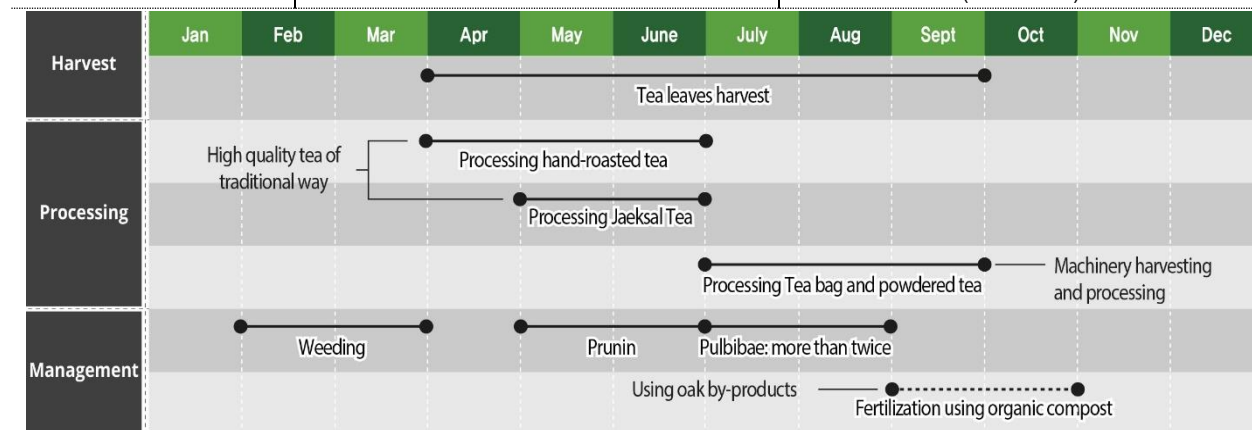


Photo 36. Pruned traditional tea fields, Gaengsin



Photo 37. Tea field fertilization using grass, Pulbibae

(2) Chaeda¹¹, carried out manually in traditional tea fields

The first tea is normally harvested around Grain Rain¹² (around April 20th) in Hwagae. The name of tea leaf differs depending on the period tea leaf is harvested; a tea leaf collected before Grain Rain is called *Ujeon*; those during the Grain Rain and Beginning of Summer (May 5) are *Sejak*; *Jungjak* for those collected in July; *Daejak* for August. Recently, due to climate change, the harvest season of *Ujeon* in



Photo 38. Chaeda in 1980s

¹¹ Picking one or two joints of a budding leaf

¹² Grain Rain (*Gokwoo*) is the sixth season of the 24 seasons in the Lunar Calendar. It is in March in Lunar Calendar and April 20 in Solar Calendar. It is said that Spring Rain, which fertilizes the soil for the growth of one hundred plants, pours on this day

some areas is becoming earlier to late March. The later the harvest is, the quality degrades due to the abundant sunlight creating certain substances making the tea taste bitter. Even during the harvest season, picking tea leaves on cloudy or rainy days is prohibited. Collecting around noon on a sunny day is not allowed, either. The reason is that the production of tannin components which cause the bitter taste becomes active during this time. Therefore, the right time to collect high-quality tea leaves is in the dawn or morning when sunlight is not abundant.

The traditional method of *Chaeda* is picking each budding leaf with hands. The young buds are only to be picked at their top part. The procedure is conducted starting from the foot of the hill to the slopes, and many people are mobilized during the *Chaeda* season. People are collected most thirty-to-forty days before and after Grain Rain, and the busiest season is when they collect *Sejak*. As *Sejak* has many leaves and takes much time to collect, the local residents work most intensively during this season.



Photo 39. Picking of tea tree and buds

The residents met the required number of workers by organizing a group for *Pumasi*, meaning the exchange of labor. A *Pumasi* group consisted of around fifty to seventy people from three or four different towns around the tea farms. Since few people had tea farms before the 1980s when tea production became more common, those who did not own their tea farms helped their neighbors run tea farms by helping them pick *Sejak* leaves. In return, they waited until the trees produce new tea leaves and received *Joongjak* or *Daejak* leaves which they could use at home throughout the year. When picking, bamboo baskets were traditionally used, but aprons made from soft fabric are used nowadays along with the development of the green tea industry. This method spread widely as it hinders the acidification process and is effective in getting a larger amount of tea leaves.

(3) The roasting of *Sujedeokum*¹³ tea, a traditional tea served to the king

Sujedeokum (hand-roasted) Tea is a traditional tea which has a nice smell and taste, and it is made by roasting tea leaves in a caldron. The recipe features roasting with hand, which can be said to be the Korea's traditional method in that the same method is recorded in *Dongsasong*¹⁴ written by *Choui* (1786~1866)¹⁵, the Seon Master. The roasting procedure goes as follows: place the leaves that are picked on the day on a straw mat, then sort them out by large leaf, leaf that is too old to use, and stem and crumb, then finally put an adequate amount into a



Photo 40. Measuring the caldron's temperature by dropping water

¹³ *Deokum*: A nominal conjugation form of the Korean verb *Deok-da*, meaning roasting without adding more water

¹⁴ A book written by *Choui* in 1837. It has information about the history of tea, the kinds of tea trees, locations and the quality

¹⁵ A well-known figure that led the flourishing of Korea's tea culture

heated caldron and roast them without burning them. The roasting improves the taste and scent of the leaves and drives the moisture out which enables the owner to store and transport them over a long period of time.

The first step to making tea is leaf selection. Brush the dust off the leaves collected from the fields, select quality leaves, and then rub them a bit to make their moisture levels the same. The next step is roasting. Roast the selected leaves in the caldron that have been heated to high temperature (250°C to 350°C), making sure that you are roasting the leaves evenly so that none of them will be burnt or underdone. Before putting in the leaves, check the caldron's temperature by dropping some water and looking at its shape. It is said that it looks like a rolling pearl when the caldron is heated enough for the leaves to be put in.

The third step is cooling. Take the leaves out of the caldron quickly and cool them on a straw mat. This is one of the important steps that decides the quality of the tea. The following step is rubbing. Rub the cooled leaves against the mat with bare hands like you are doing laundry. Controlling the temperature, repeat the cooling and rubbing several times.

The next thing to do is drying. After you finish the rubbing, separate the tea leaves by brushing them until there is no leaf folded on another leaf and put them on a wicker tray and dry them. Then roast the leaves again. Roast the dried leaves at a relatively low temperature (80°C) for two to three hours. This is the most important step in keeping the taste and scent of the tea. Following this procedure, you will get completed tea leaves containing 5-6% water, rich both in aroma and taste, and can be stored for a long time.

The last thing to do is sorting out and packing. When you are done with the final roasting, sort out the stems, crumbs, and leaves that are too old to use once again and put the selected leaves into a container. Making traditional *Sujedeokum* tea leaves takes about seven to eight hours through the night. Every step to make traditional teas in Hadong is done manually like this. Local residents have made their livings providing high-quality traditional teas whose taste and aroma are different to teas from other regions. Moreover, the recipes of Hwagae's traditional tea can be found even in the historical records from the Three Kingdoms Age of Korea (A.D. 4C to 7C), and with the acknowledgement of its value, it was designated as the National Intangible Cultural Heritage No. 130.

While farmers collect tea leaves from level fields using automatic leaf-cutting machines and makes powdered tea or tea bags with those leaves, such machines are not used for the harvest of tea leaves growing in the region's traditional fields. Some farms follow Chinese or Japanese methods of making tea leaves. Such tea, called *Jung-je Tea*, is made by steaming the leaves with a steamer right after they are picked, not by roasting them in a caldron. These leaves are not for sale and consumed by the producers at home. Production of powdered tea in Hwagae has started only recently, as its demand increased in and outside Korea. Powdered tea is made by drying heated leaves and grinding them with a millstone or blender. Powdered tea has a stronger taste than leaf tea because it is consumed melted in water.



Figure 11. Handmade roasted manufacture process of the traditional tea

In Hwagae region, tea was produced as a tribute to the king until the Late Period of Chosun (1897-1910), and only aristocratic or well-off families could enjoy the high-end tea such as *Ujeon*. Ordinary people and monks fermented leftover tea leaves or rough leaves harvested in July and October. This fermented tea is called “*Jaeksal*”¹⁶ by the locals.

Jaeksal was produced in the following procedure. Dry the harvested leaves in the shade for a day until they wilt, and rub them making sure they are not crumbling. Repeat this several times and ferment them for one hour at least or one night at most. Fermentation is *Jaeksal*'s unique feature. The time of fermentation depends on how early the leaves were picked. If the leaves were collected during the *Sejak* season, they were supposed to be fermented for around an hour, and the later the leaves were picked, the longer they were fermented. Then whisk the dust off the fermented leaves and place them on the floor covered with *Hanji*, a traditional Korean paper, heated by *Ondol*, Korea's traditional floor heating system. *Jaeksal* produced in this way was stored in the shelves under well-ventilated eaves, and people occasionally drank this until the next harvest. Making *Jaeksal* tea is similar to making other traditional teas, but the difference is that when making *Jaeksal* tea, you dry the leaves in the shade, not in the sun, and rubb them to ferment them. *Jaeksal* tea has been common to people in Hwagae, and they used caldron or herb-extracting boiling pots when boiling it.



¹⁶ A word in Gyeongsang dialect. The leaf was named so because its budding leaves looked like a little bird's tongue

Table 11. Processing method of Jaeksal

Process	Direction
① Drying in open air	Dry the harvested leaves in the shade until they wilt. Stir them while they are left for a day or two, and the leaves will decrease in volume.
② Rubbing	Rub the leaves on the straw mat but not until they crumble.
③ Drying	Dry the leaves in the shade. Repeated rubbing and drying will make the leaves shrivel.
④ Fermentation	Leave the tea leaves for an hour or overnight.
⑤ Drying	Dry the leaves near the fireplace or in the shade until they're parched.
⑥ Preservation	Put the leaves in the hanji-the Korean traditional paper-envelopes or straw baskets and store them in the ceiling corner of shelves.



2.4 Cultures, Value Systems and Social Organisations

(1) Traditional tea culture passed down along with Buddhist cultures

a) Hwagae's tea culture that sprang out from Buddhist cultures

Especially in Hwagae among the many regions of Hadong, Buddhism flourished so much that the towns were located under Buddhist temples, which earned the region the epithet “Jirism Mountain Buddhism.” A scholar of early-middle Chosun, Ji-baek Kim (1574~1637) even wrote in his travelogues that “Chilbul Temple over Samshin-dong is of the most beautiful view in particular, among the 370 temples in the Jiri Mountain.” after travelling the mountain. Furthermore, Jinyang-ji, a historical report on the region, tells us that there were just about five-hundred people living in Hwagae and Akyang while the number of Buddhist monks living in Hwagae were several times bigger than that of the residents. From such records, it is conjectured that there were many temples corresponding to the number of monks. Even a folktale saying “A person took off his straw shoes and visited the temples across the region, and when he got back to where he took off his straw shoes, he found them already rotten.” is spoken among the locals. The fact that the names of seven out of the nine administrative districts (Buchun-ri, Tap-ri, Samsin-ri, Jeonggeum-ri, Unsu-ri, Beomwang-ri, Daeseong-ri) are derived from Buddhism or temples proves this as well. Moreover, the records in 1454 about areas which were producing tea in

Sejong Silok (Record of King Sejong) verifies that most of the areas where there are tea fields now have temples of long history or remains of temples. That is, tea fields spread in the region with the prosperity of Buddhist culture.

In the early Joseon Dynasty (1392~1550), the tea fields of Hwagae spread along with Buddhist temples. The only temples that remain up to day are Ssanggye Temple and Chilbul Temple, and tea farms are widely spread out around these two temples. Before the modern era, tea fields of Hwagae-myeon were managed and run by the temples, and the locals participated in the tea production cooperatively. The temples' agricultural methods that were accumulated over a long period of time were transmitted to the locals from the monks. In other words, through the cooperation between the temples and the towns, the region's unique agricultural methods were developed and established, and they have been passed down to their descendants for generations. We could even learn that the monks based in Jiri Mountain valued and enjoyed tea from the fact that the head monk of Ssanggye Temple was named “*Chun-myung*¹⁷.” The prosperous Buddhist culture in Hwagae also played a crucial role in continuation of the tradition of tea fields utilizing the favorable weather, as well as the preservation of *Sujedeokum Tea*, the region's unique hand-roasted tea.



Photo 42. Management of tea fields by Ssanggye temple's monks



Figure 12. The formation process of Tea culture in Temples

¹⁷ The name means a leaf picked in spring season or tea roasted with a spring leaf

b) Roles of Buddhist monks in fostering tea culture

Tea cultures around the world developed with temples at their centers. The tea culture in the temples started in the Ancient India, the home of Buddhism, and as Buddhism spread across China and to Korea, the temple tea culture followed as well. In Buddhism, tea was considered the seekers of the ultimate enlightenment's company on and more than a mere beverage to be imbibed.

Traditional tea was highly praised and enjoyed by many renowned Buddhist priests and scholars of Confucianism. Even at the period when the distribution of tea was not facilitated, monks at Ssanggye Temple including the Seon master Choui and writers relished the tea of Hwagae together while improvising poems about requesting and offering a cup of tea.

Table 12. A Poem from Ssanggye Temple by the Zen master Choeul

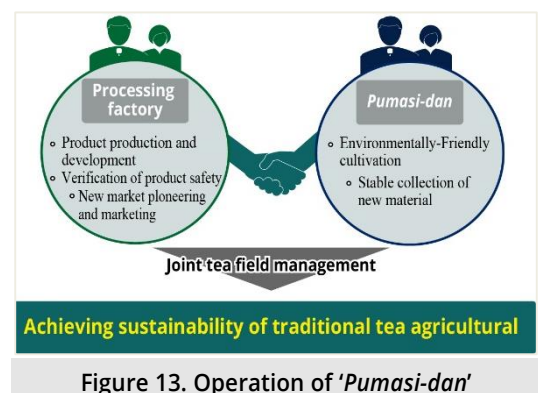
<p>I happened to walk near the mountain temple / and I enjoyed myself to the fullest. The stream runs through the meandering gorge / and the shape of the mountain surrounds the heavens. I may not keep the promise / that I will come to stay another night later, but much rain has fallen on the temple deep in the mountain / only to clear up in the evening. The air has become cold while I was unaware / and in the empty temple in front of the old pine tree with its roots entangled like dragons with the color of old / duck-shaped incense burner lies in the service hall. Alas! At my path to Huangmei / where can receive the teachings of the Fifth Patriarch Hongren</p>
--

Modern tea culture of Korea has changed a lot since the late 1970's. Tea culture movements were active, and the Buddhist society was the leading force. At the time, monks did not just preach the messages of Zen. While managing and maintaining the tea fields of the region, they were enthusiastic to transmit their accumulated knowledge of tea agriculture to the locals as well as production of the tea and tea utensils. It was such that Buddhist names and the temples' names were used for the tea products and the tea utensils like brand names. This shows that the tea farming of Hwagae was managed by the monks of a temple in Jiri mountain from production to distribution.

Traditional tea manufacturing methods of Hwagae today remain the forms taught by the monks of Ssanggye Temple in Hwagae. Kim Donggon, a tea maestro, was taught the Zen method of tea production by monks *Geumsong*, the former head monk of Ssanggye Temple, and *Deokryong*. The traditional tea agriculture of Hwagae-myeon in Hadong is inseparable from the Buddhist culture, and there are still much interaction between the temples, Ssanggye Temple and Chilbul Temple, and the locals up until now.

(2) Management of tea fields through townspeople's cooperative community, *Pumasi*

In the traditional tea fields in Hwagae, traditional handmade tea production, which collects hand-picked tea leaves with no tools, is still maintained. The residents collaborated with the neighboring farmers and villages to construct the '*Pumasi-dan*', and the work was carried out by varying the number of participants according to the amount of harvest and the scope of work. *Pumasi*, the traditional labor exchange system, developed



into a joint production and management system for the tea industry from the old cooperative system in which they experienced the hardships of labor and abundance of harvest together. Hwagae also stands out in Hadong with its most successful *Pumasi* system until now in. There are 6 processing companies that operate 10 *Pumasi* units with 20 villages in Hwagae. Usually, each labor exchange group takes charge of all parts of the process from harvesting to tea processing: The farming households harvest tea leaves and sell all of them to the processing companies, and the companies process the fresh tea leaves into traditional tea and sell them at the tea market. This system is significantly contributing to the conservation of the local tea agriculture environment.

Table 13. Operation status of Hwagae-myeon ‘Pumasi-dan’

Processing company	Service Exchange Organization	Name of Village
[6 Processing companies]	[10 Pummassi-dan]	[20 Villages]
Hanbat Tea Co., Ltd.	Boochoon	Gumdoo, Singo, Boochoon
	Dukeun	Joonggi, Sangduk, Youngdang
Hwagae Tea Co., Ltd.	Topli	Wontop, Bumha, Gatan
Dongchun Tea Co., Ltd.	Junggeum	Junggeum, Sinchon
	Samsin	Samsin
Ssanggye Tea Co., Ltd.	Moam	Moam
	Yonggang	Yonggang
Jotae Yeonga	Woonsoo	Sukmoon, Mokam
Hwagae Agriculture Cooperatives	Sinhong	Sinhong, Euisin, Danchun
	Bumwang	Bumwang

※ Source: Internal data of Hadong County Office (2016)

(3) Tea Culture in People’s Lives

a) *Jaeksal* as folk remedy

As a fermented tea, *Jaeksal* is a beverage that has been enjoyed through generations not only in Hwagae-myeon but also in the entire Hadong-gun area. It was their daily healthy drink and household medicine. *Dongdasong*, written by Seon Master *Choui*, tells us that monks in their Zen meditation period picked leaves that had become rough later than the usual season and dried them in the sun without steaming or roasting them. Then they put the dried leaves in the caldron and boiled it like they were cooking soup with wild vegetables. This turned the water into deep tea and the monks drank it. In the past, the residents or monks drank *Jaeksal* rather than *Deok-um* like this.



Photo 43. Brewing *Jaeksal*

Methods of roasting *Jaeksal* has developed in various ways, too. People in Hadong add oriental medical herbs, mountain fruits, flowers or other ingredients such as gingers, quinces, wild pears, bamboo leaves, and roast the tea. When someone is feeling under the weather, they add three or four gingers or some dried wild pears as big as trifoliolate oranges in the tea before roasting it, and rested after drinking it. They also give the tea to their relatives visiting them as household medicine to pass winter with. Moreover, it is said that in the past it was used to treat

rashes. When one washes the part of the body that has rashes with a boiled mix of the tea with trifoliate orange and a pinch of salt, the rashes soon went away. The locals also chewed the tea when they have motion sickness in car and drank the tea when they get thirsty while working in the fields in the sun to quench the thirst and prevent stomach troubles. In such ways, the tea was used in many folk remedies.

In 2016, *Jaeksal*, a fermented black tea that has been passed down among ordinary people, was enrolled as a culinary culture heritage in Ark of Taste, the international organization for slow food, its historical and traditional values are now acknowledged along with *Sujedeokum*.

b) Living manners preserved through the tea agriculture

i) *Pungda-je* (Rites for good harvest) and Tea Culture

To wish for a successful harvest, ancestral rites are conducted around Grain Rain, which marks the beginning of the tea cultivation. The *Pungda-je* (an ancestral rite) is held in April by the committee of Hadong tea producers every year. Based on the tea fields around Ssanggye Temple, it is held in the order of *Gil-noli* (walking around the town before traditional folk plays or rites), *Jisin-baggi* (stepping on the fields to satisfy the spirits of the earth), *Heonda-rye* (serving tea on the table as the 12th step of the ritual) and *Dadamhwe* (having a talk while drinking tea). Moreover, the locals enjoy drinking the tea with manners in daily lives, when someone visits their houses or they invited people for family events.



Photo 44. *Pungda-je* at the First Tea Farm



Photo 45. Tea ceremonies in the daily lives

ii) *Giwon-je* (Rite to pray wishes) of Chilbul Temple

From old times, every tea-cultivating household has participated in prayer rituals held in May and October every year at Chilbuls temple, earnestly praying for a rich year. The region's unique ceremony is conducted in a way that harmoniously mingles the tea, religion, and livelihood of the region. The tradition started from a Buddhist ritual which prayed for the health and peace of monks and locals with Buddha's mercy spreading through tea.



Photo 46. *Giwon-je* at Chilbul Temple

iii) *Bong Tea (Sealed Tea)*, developed to a marriage custom

The living manners of the residents with regard to their tea culture can also be found in their marriage custom. When two families agree to get their children married to each other, they exchanged seeds of the tea in *Bok-jumeoni* (a lucky bag), a small traditional Korean pocket, and kept them preciously. It was meant for chastity, signifying the vertical roots of a tea tree. Also, tea trees are called *Silhwa-sangbongsu* (fruit reunion tree) or *Moja-sangbongsu* (mother and son tree) as tea trees bear fruits when they bloom and retain them until the next bloom which is next year, and this signifies the love between parents and children. Likewise, the tea tree has its cultural roots in the region not only as methods of survival but also as a culture deeply ingrained for the living culture of the local people. In Hwagae, there are many poems and songs about enjoying tea, which were created and passed down since Shilla up to now. These include the Great Buddhist Master Seosan’s poems improvised while enjoying tea after he built a small temple and named it the *Nae-eun-jeok-am*, and Great Buddhist Master Buhyu’s poems written to express his joy of planting tea into the forest in Chilbul Temple while devoting himself to Buddhism. Folktales about the use of tea as medicine and as tribute to the king are also passed down orally.

iv) Tea, Poems, Songs and Culture

Hadong-gun, referred to as the home of tea, is the capital of tea culture with various folk songs, poems and songs of our ancestors and people of today. These include the Great Buddhist Master Seosan’s poem written in a small temple he built called the Naeunjuk Hermitage while enjoying tea and Great Buddhist Master Buhyu’s poem written to express his joy of planting tea into the forest in Chilbul Temple as he practiced his Buddhism. Folk of *Jaeksul* used as medicine and Traditional hadong tea tributed to the king are also passed down orally.

Table 14. Folk and poems related to tea of Hadong-gun

<p style="text-align: center;">Hwagaedong Poem <i>Gwooon Choi Chiwon</i></p> <p>The Hwagaedong of the Western country Full of stars in a gourd bottle A fairy shoves a jade pillow Suddenly a thousand year has passed</p>	<p style="text-align: center;">Tea Poem <i>Chusa Kim Junghee</i></p> <p>When spring comes in Ssangye, the destiny of tea is formed In the acha of the tea water, dasun covers Gluttony cannot stop at an old age that they want more laver dried in the fragrant sunlight</p>
<p style="text-align: center;">Tea Harvest Song (a folk song) Unknown</p> <p>Pick the choyup give it to a merchant Pick a joongyup give it to parents Pick a malyup give it to husband Make herb medicine from old leaves Put it ina bag and give it to my child when his stomach aches He gets better having herb medicine and grows well</p>	<p style="text-align: center;">Tea Harvest Song (a folk song) Unknown</p> <p>Pick the choyup give it to a merchant Pick a joongyup give it to parents Pick a malyup give it to husband Make herb medicine from old leaves Put it ina bag and give it to my child when his stomach aches He gets better having herb medicine and grows well</p>

2.5 Landscapes and Seascapes Features

(1) Characteristics of the tea fields' scenic view

a) Formation of a Cultural Landscape in Tea-cultivating Area with Slopes

The landscape of Hwagae region can be said as an ecological, socioeconomic, and cultural pattern created by the relationship formed between the activities and environment of people who have formed villages in terms of cultural landscape. Continuous human interference in particular acts as a deterrent against the nature and leads to a unique ecological space in which human beings and nature coexist. Through this process, the cultural landscape has been continuously shaped by human activities and has formed the unique system. The locals have recognized the importance of 'tea farming' as an economic means of living and have developed an appropriate land use system. As a result, agricultural technology, culture, social system and customs related to tea farming sprang up in Hadong, and land use management centered on tea farming has affected the maintenance of the ecological balance of local species such as emergence and distribution of species.

The change of Hwagae's cultural perspective can be put in time series as follows: Before the formation of temples and villages there was no intervention of people, so the 'primitive natural landscape' was dominated by the forests of the mountain. These landscape structures gradually began to change as temples and villages were created in Hwagae area and partial cultivation activities were performed by people. Especially when tea farming technology was brought to Shilla Dynasty (AD 828), the landscape began to change more rapidly.

With the introduction of tea and tea culture and technology to China, the temples began to use the native tea plantations of Jiri Mountain. Especially after the Goryeo period, Buddhist culture and tea culture have been developed by the kingdom's pro-Buddhism policy, and the village under a temple was formed along the valley of the Mountain. Also, as the tributary payment system was implemented, a large amount of tea had to be paid as tax for people in Hwagae. Accordingly, in order to produce tea, the tea plantations that formed communities around the temples expanded to the entire mountain, and from that time, a unique tea garden form was established. The composition of the tea fields started from the tea plantations that were naturally growing in the forests and border areas of Jiri Mountain, and the techniques of dealing with the breeds were introduced. In addition, the residents determined that the slope area where the native tea plantations were distributed was small, and sprinkled the vehicle around them.

In the process, the dominant arbors and shrubs would have been partially removed for tea plantation. In particular, irregular tea fields were formed due to the geographical conditions, which are slopes, large and small rocks, and ecological conditions, where various arbors and shrubs dominated. Under these conditions, cultivation using manpower and equipment was difficult. Therefore, in Hwagae, it was necessary to use the slanted natural environment as it was in the formation of the tea field. Because of this limitation, small tea fields on the slopes were formed in various places.



Photo 47. Tea Fields Managed by Chilbul Temple

The management of the tea fields was handled by monks, and the local residents learned the methods from the monk to make livings. Tea cultures that were developed in temples and tea cultivation methods gradually spread to villages and the number of people engaged in tea farming also increased. However, as the days of Joseon dynasty, the production of tea gradually decreased due to ideological change, the abolition of subsidy system, and frequent warnings. This phenomenon was promoted when the regional structure, which had many temples



Photo 48. Management of tea fields by Ssanggye temple's monks

in the Japanese colonial period, changed into a village-centered form. On the other hand, as the traditional tea fields in the mountains have been converted into farmland, the elements of Hwagae landscape have diversified.

In this way, tea farming in the Hwagae area has repeatedly spread and declined, taking into account the situation of the times, environment, social and cultural context. During the Japanese colonial period (1910~1945), various kinds of trees such as persimmon trees and chestnut trees began to be planted in the forest where the tea fields were located. As the society became stable after independence (after the 1960), in Hwagae tea farming recovered and tea production gradually increased. At the same time, large-scale tea farms such as Boseong and Jeju were established, and tea production in Hwagae was made by a large number of small farmers in the old way and natural farming method by hand was maintained. As a result, it was possible to preserve the shape of the traditional tea fields distributed at the foot of the mountain between Jiri Mountain forest and the valley. From the 2000s onward, tea farming as a high value-added agriculture has been spreading, and flat plains of farmland around the Hwagae stream have been transformed into tea fields. In this way, the proportion of tea farming in land use in Hwagae is increasing significantly, and modern technology is introduced in tea garden management.

In sum, the unique agricultural land use of Hwagae was formed during the development of tea farming, and the whole land use system of Hwagae area was created, especially as tea fields were expanded to conform to the geographical conditions surrounded by Jiri Mountain. In addition, we have been able to minimize changes in local climatic and geographical conditions by keeping natural farming methods that have minimized artificial management for a long time, and we have been able to prevent ecosystem deformation against forests / vegetation and animal species. Recently, as the plains tea fields have been formed around the Hwagae Stream, the cultivation method and form are different, but the land use of tea farming concentrated on the slope has been expanded to the entire area.

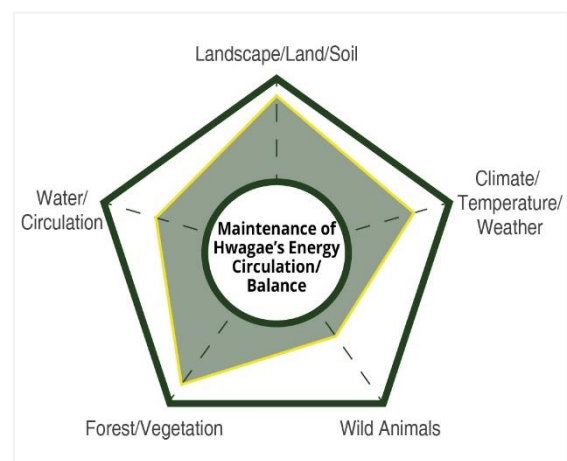


Figure 14. Factors that change the land use of Hwagae

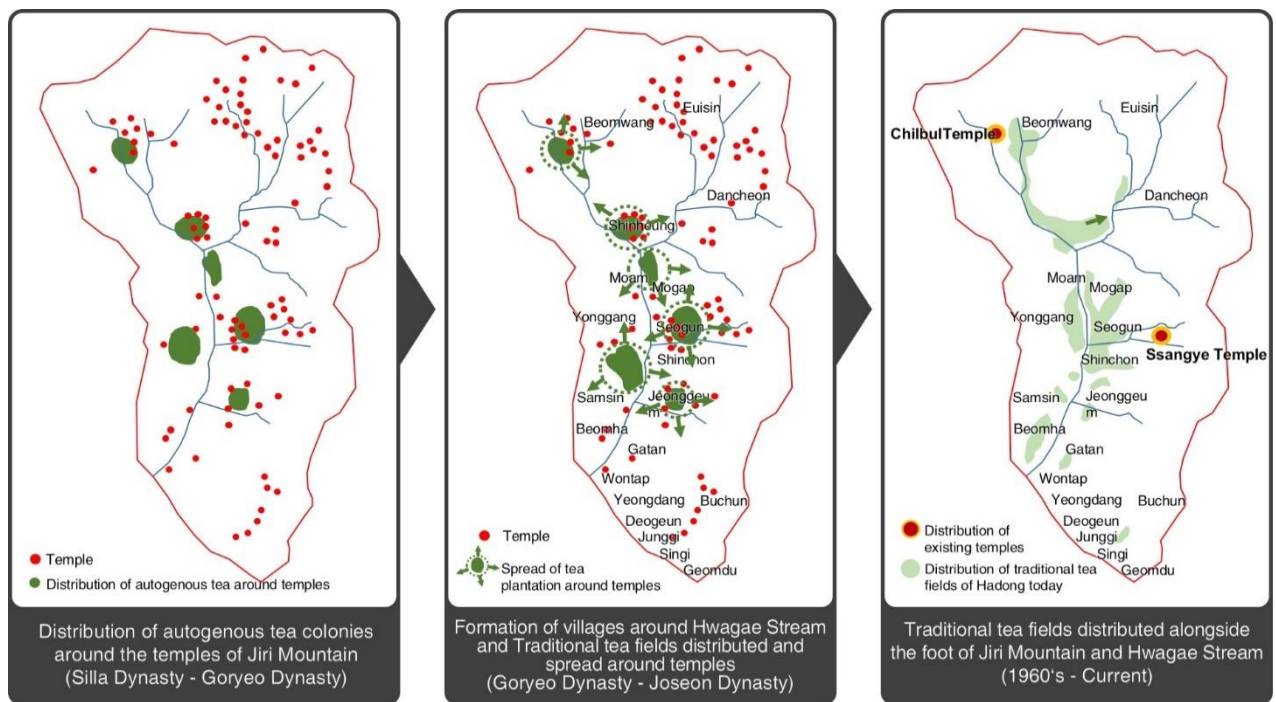





Figure 15. Changes in the land usage of Traditional tea fields (From the locals' testimonies)

b) Formation of Cultural landscapes¹⁸ in the daily living through the maintenance and transmission of traditional tea farming techniques

Many different beauties of the region's traditional tea agriculture are reflected hugely not only in its physical views. They are also seen through the residents' unique lifestyle which changes in accordance with the season's agricultural activities. When spring comes, the residents picking the first tea leaves on the tea fields spread like green carpets halfway up the mountain themselves form a beautiful agricultural and cultural view. In particular, during the season between spring and early summer, one can see women harvesting tea leaves anywhere in the towns. Roasting the harvested leaves in a caldron after drying them and drying them again to ferment them is Hadong's unique view that can be seen during this period. These cultural views represent the visual and mental interaction created between the natural environments and the livelihood and agricultural activities of the locals. The views can also be seen as the region's characteristic value that best shows the traces of people living in nature.

Table 15. Cultural landscape related to tea agriculture

Type	Contents		
Tea harvest			
In April, residents and monks from nearby temples are found harvesting tea leaves across the town			

¹⁸ Reference: suggested annex 5) Pictures Related to Traditional Hadong Tea Agrosystem



(2) Formation of the unique ecological landscape through the maintenance of environment-friendly traditional tea agrosystem

a) Characteristics of ecological landscapes induced by the maintenance of tea fields using slopes

Hadong's unique ecological characteristics can be found through the forms of tea cultivation in Hwage. Traditional tea fields shows different scenic views compared to level tea fields around Hwagae Stream. Formed harmoniously with the vegetation of the slopes (the arbors, shrubs and ground vegetation) and the rock, traditional tea fields have unique views mingling with the surrounding mountains. There are some big colonies of tea trees formed linearly along the ridges, but the region also has many small ones sparsely formed on the slopes. Between the colonies are many big and small rocks and arbors bigger than tea trees.

To illustrate, in borderline areas where Hwagae Stream and the tea fields meet, the colonies are formed in the upper part of the valleys' slopes where tea trees are unlikely to be flooded. The areas also have unique scenic views with the rocks along the river mingled with seasonal mist. Second, as traditional tea fields are formed between the autogenous arbors or fruit trees and crevices on the rocks, they have a landscape which looks untouched by humans and similar to mountainous landscapes depending on the number of arbors, shapes of trees, and the size and shape of the rocks.

Third, the characteristics of the fields are shown less clearly at the borderline area between the forests and the fields as the trees cannot go up the slopes because of their steep degrees. Thus, forest vegetation rather than tea trees is predominant at this area, and tea fields are formed in triangular shape. Although most traditional tea fields are located in many different spots between the forests and mountains and the residential areas and the forests, the landscape of traditional tea fields is consistent as each field is not divided by stone walls or fences. Such environmental-friendly use of the land is significant in that it not only preserves the ecosystem in mountainous areas but also harbors the tea fields, mountainous areas and vegetation altogether.

Hwagae's management and maintenance of the land, majority of which is used as tea fields, contributes to the region's unique landscape distinct from level fields or farms constructed in stairs. Moreover, despite being a kind of evergreen arbor that does not go through a noticeable change in its look, the tea trees create various scenic views with seasonal changes as they are near the forests and streams.

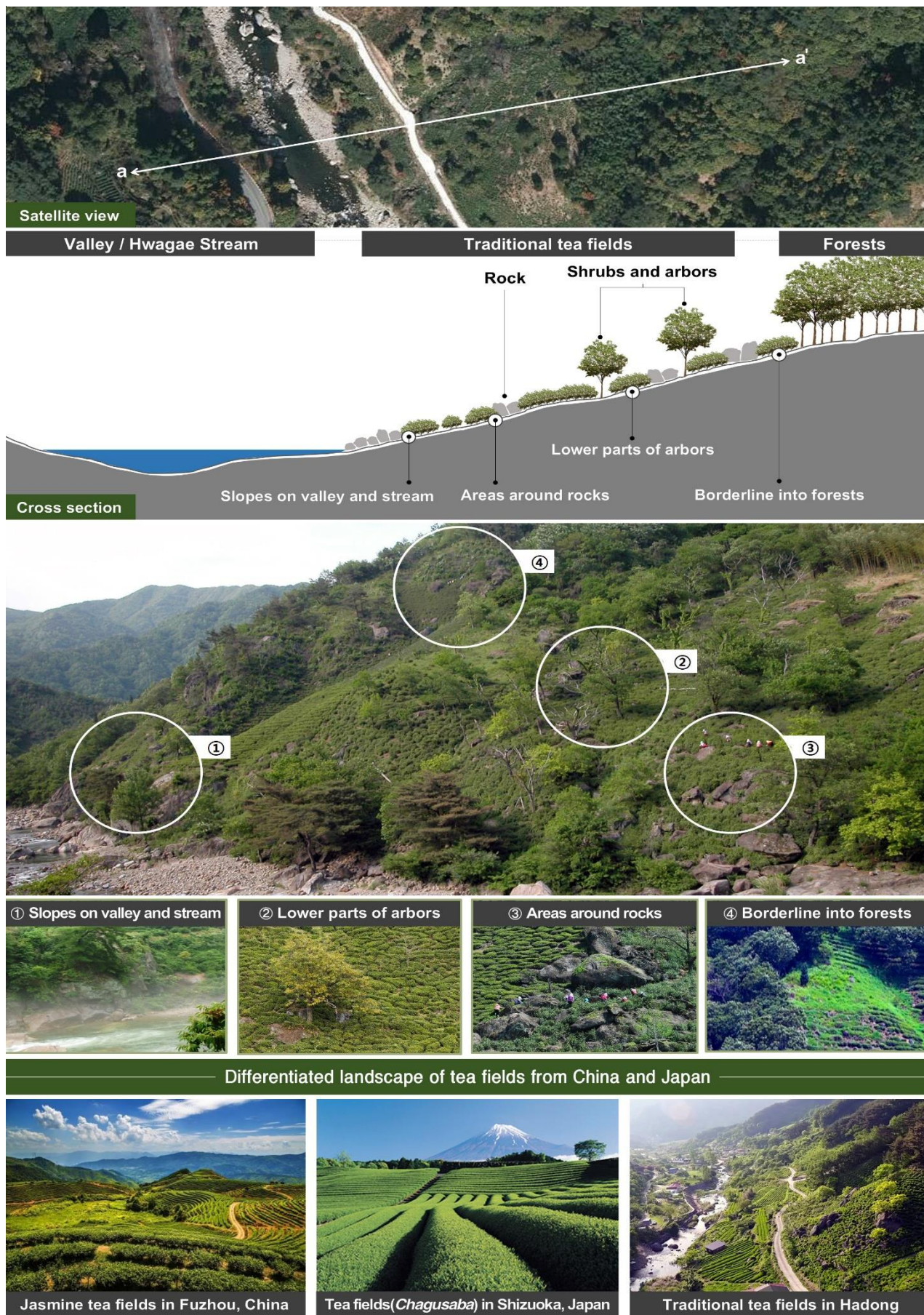


Figure 16. Characteristics of the traditional tea fields' ecological landscape and comparison with those of other regions

b) The views of the fields changing with the change of season

Hwagae's landscape is based on the mix of the tea fields with the region's special geography where Jiri Mountain's banks are spread and Hwagae Stream's valleys stand tall, and the nature's ethereal beauty, which altogether form the unique aesthetic views retaining the beautiful landscape of the wilderness. In spring, the tea fields spread sparsely on the valleys form a scenic beauty looking like a green carpet, creating a beautiful harmony with the residents' clothes in bright colors when they harvest tea leaves in the fields laid on the steep slopes. The cherry blossom trees that have bloomed along Hwagae Stream four kilometers also make an exotic view with the verdant fields. This is the season when the region is visited most by travelers. In summer, white, clear mist blooms over the fields and locals move their hands busily picking the tea leaves last minute. When fall comes, the green fields get into the yellow and red of the surrounding trees, and white tea flowers bloom bearing delicate scents which last until snowing winter.

Table 16. Traditional tea fields and their seasonal landscapes



III. Other Social and Cultural Characteristic of the Agricultural System

1. The sales of Traditional tea and Social interaction: *Jaeksal* Market and *Hwagae* Market

In the past, most of the tea produced in Hadong was consumed by the locals, while in *Hwagae* people sold their tea in various occasions. They sold the tea they produced visiting households and markets including temporary markets called *Jaeksal-jang* (*Jaeksal* Market) which were opened during the barley harvest season. With their huge production of tea, the residents of *Hwagae* went to *Agyang* or *Hadong-eup* to sell their tea, some of them even going as far as to *Namhae* or *Busan*.

Since tea leaves were light, people participating in *Jaeksal-jang* were mostly women, and they went across *Seomjin* River and up and down *Jiri* Mountain for the sale of the leaves to make up the region's insufficient crops and support their families with the profits. This way of selling lasted a long time in the region, and the industry thus has developed a characteristic that the producer and the distributor were the same. Tea leaves were usually traded with rice or barley, but sometimes with items necessary for living such as red beans, silk, and so on.



Photo 49. *Jaeksal-jang*

Currently, the tea leaves are distributed in *Hwagae-jang*, one of the most well-known traditional markets in Korea, although the market does not really follow the traditions of *Jaeksal-jang*. The formation of *Hwagae-jang* is not known, but it is conjectured that it started, as specialties from different regions gathered in *Hwagae-naruteo* (*Hwagae* Pier), which served as the center of trades across *Seomjin* River, and the trades between peddlers became active.

There are historical records that in *Hadong-gun*, boats could reach *Hwagae-jang* and seafood that was produced in regions around South Sea such as *Namhae*, *Yeosu*, *Geoje*, *Samcheon-lo* was traded with agricultural products and traditional tea made in regions like *Hadong-gun*, *Gurye-gun*, *Namwon-si*, *Hamyang-gun*. *Hwagae-jang* was run as a five-day market since *Yeongjo*'s reign (1770), and it was so thriving that people counted it as one of the Seven Markets until Korea's independence (1945). Up to these days, it remains a famous tourist spot that thousands of travelers visit every year.



Photo 50. *Hwagae-jang*

2. Tea tools passed down with Tea culture

Tea and tea tools are closely related to the life of people in Hadong-gun, the home of the tea of one thousand years. Tea tools refer to every tool used to make tea, and they can be used in various ways depending on the purpose of the tea and one's taste. In Hadong, there are still traditional kilns that produce tea tools. Seon Master *Choui*, who served tea for the king, wrote in *Dasinjeon* that one must make tea cleanly, using methods not too complicated, with nothing distracting his mind. This mindset is reflected in the tools that are produced even today.



Photo 51. People enjoying tea

Traditional tea utensils used for Buddhist tea offering ceremony in Hadong			
			
Tea jar for a large amount of tea	Various teapots	Cooling bowl	Screening net
			
Earthen tea cup and saucer used for tea offering ceremony	Brass tea bowl and msall teapot	Grayish blue powder celadon tea bowl	Teaspoon for tea leaves
Tea utensils used to process traditional tea of Hwagae			
Kettle	· Made from iron and used to roast tea leaves.		
Flipper and scoop	· Used to scoop out the roasted tea leaves from the kettle		
Broom	· Used to sweep out the poked-out tea leaves and other debris around the kettle		
Straw mat	· Used to rub the tea leaves. The finer, the better		
Winnowing basket and fine mesh screen	· Used to winnow out the powder which is an essential part of making good tea		

Figure 17. Traditional tea utensils of Hadong-gun

IV. Historic Relevance

1. The introduction of Hadong tea

a) Hadong-gun, holding historical significance as the first tea field

The introduction of tea trees to Hadong-gun is not clear, but *Samguk-sagi* (the Chronicles of the Three States) tells us as follows:

Table 17. From Silla Bongl X, the third year of King Heungdeok

In the December of the third year of King Heungdeok's reign(828 AD), an envoy was sent to the Tang Dynasty China to offer tributes. Emperor Wenzong of Tang received the envoy in the Royal Hall and held a banquet, granting the envoys with royal gifts according to their ranks. Kim Dae-ryeom, the envoy to Tang, came back with tea seeds, which the king ordered to plant near Jiri Mountain. Tea was present in our country since the day of Queen Seondeok, the 27th monarch of Silla, but this is when it truly became prevalent.



It is conjectured that the first tea production was conducted 1,200 years ago, and the tea trees were planted around the temples. Temples took charge of the management and maintenance of the fields, as there were no towns in Jiri Mountain yet. During the reign of Queen Seondeok (632~646), the region's special tea was produced and there was already a tradition of tea drinking, but it is agreed that the time when tea production became active was during King Heungdeok's reign. Fostering tea agriculture was a new policy implemented during his reign in order to meet the fast-growing demand for tea as well as the popularization of Buddhist culture.



Photo 53. The Oldest Tree

In celebration of this, *Hanguk Da-in-hoe* (Association for the Tea Culture) Corp. installed *Kim-dae-ryeom-gong Cha-si-bae Chu-won-bi* (a monument set to commemorate the old time when Kim Dae-ryeom first introduced tea) in May 25, 1981, and designated this day as the Day of Tea. After this, investigations on the wild tea trees across the nation were



Photo 52. The First Tea Field

conducted by Korea Record Institution and the Korean Tea Association from 1985 to 2003, and in July of 2008 the institutions officially certified Hwagae-myeon to have the First Tea Farm of Korea and set a monument of certification. The First Tea Farm (*Sibaeji*) was designated as Gyeongsangnam-do Heritage No. 61.

The age of a tea tree is the living evidence of the region's long history of tea culture. Hwagae has Korea's oldest tea tree as well as the First Tea Farm. It is the one in the field located in the downtown of Jeongguem-ri, Hwagae-myeon. Furthermore, according to the research conducted by the Korean Tea Association and Research

Association of Korea Tea Culture, it has the largest body whose height is 4.15m, longest distance between two branches 3m, and girth 48m, and its age is estimated to be 1,000 years old. It is designated as Gyeongsangnam-do Heritage No. 264.

b) History of Traditional hadong tea agrosystem

Hadong-gun's famous product was Tea, and its traditional tea was a tribute to the king until the late Chosun period (early 1700s). Tea factories were built in the areas where high-quality tea was made, and the locals were made to produce tea and tribute it to the king. In Hwagae, where there were more temples than towns, the temples took the charge of tea production. The local government office also managed the tea fields for tribute.

Hadong-gun became a strategic point after the outbreaks of wars and conflicts such as *Imjin-waeran* (Japanese Invasion of Korea; 1529~1598) and *Donghak Movement* (1894). During Japanese colonization (1910~1945), many towns were built in the mountain. Consequently, the region was divided into forests, tea fields and paddies, damaging the existing tea fields on the slopes so much that it left only fews and most tea farms disappeared. The practice of tea agriculture barely survived as well, posing a threat to national breeds. Breeds derived from Japanese trees were spread throughout the country and tea fields were made. Hadong, however, could maintain their own breeds as the Japanese found its geography unsuitable to the breeds.

In the 1960s and 1970s, there were only about six families that picked wild tea leaves growing in Jiri Mountain. The fields were restored for ten years with the *Pulbibae* method, after Monk Gosan's appointment as the head monk of Ssanggye Temple in 1975. The field restored at this time, which was as large as about 20,000 pyeongs (66,000 square meters), is the First Tea Farm. In 1980, tea farming, which had been done in some parts before, was then spread to the entire Hadong-gun seeing the nationwide increase of tea consumption. What is remarkable in this period is that Ssanggye Temple distributed the seeds of the tea tree to the locals and encouraged them to participate in the tea agriculture, coupled with the education on tea agriculture by the local government. Furthermore, as education and dissemination of tea production was started on the regional level, tea farming became more vitalized and the tea fields were formed in their current form.

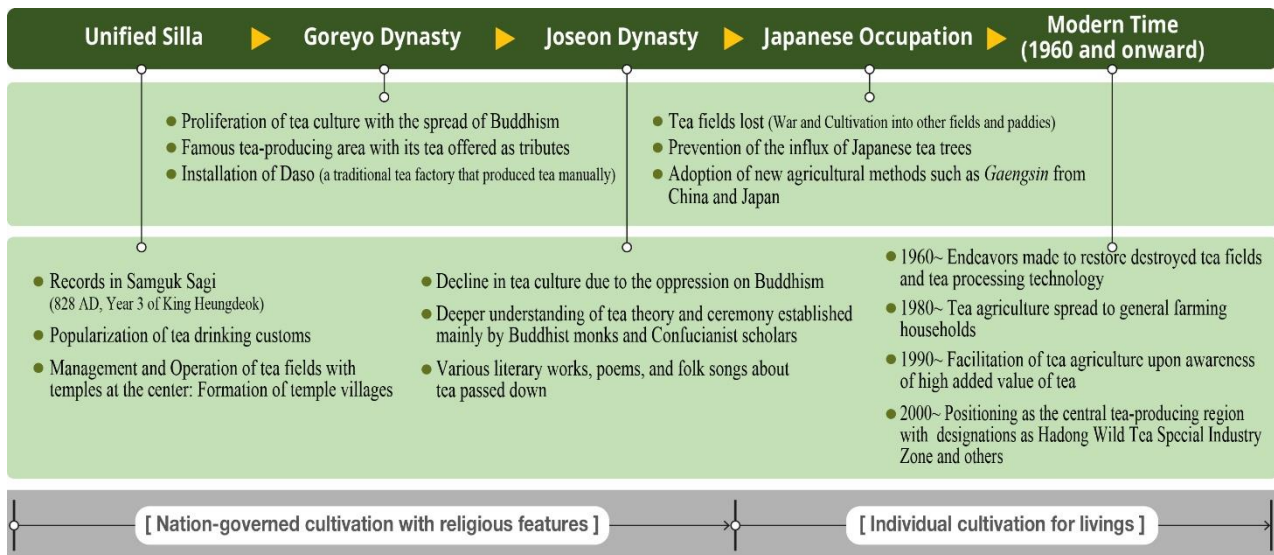


Figure 18. History of Traditional tea agriculture in Timeline format

2. Historical records related to cultivation of Traditional tea

Among the several regions in Korea producing tea, Hadong-gun is a noteworthy one in terms of history and culture. It was known as the first tea farm, and produced the largest amount of tea in Goryeo and Chosun.

The origin and excellence of Hadong tea agriculture is recorded in old documents such as *Samguk-sagi*, *Dongguk-isanggukjib*, *Dongdasong*. It is said that Choui, the author of *Dongdasong* and *Dasin-jeon*, and Kim Jeong-hee (1786~1856; a scholar of the realist school of the Confucianism in the late Chosun) chose the traditional tea of Hwagae as the best Korean tea while exchanging tea and letters. Jeong Yak-yong (1762~1836, another scholar of the realist school of the Confucianism in the late Chosun) also praised the flavor of the traditional tea, remarking that he could focus on his writing with the tea during his exile in Gangjin.

Table 18. Traditional Tea in Historical Records

Period	Characteristics
Unified Shilla Dynasty (676~935)	<i>Samguk Sagi</i> (Shilla bongi Vol. 10 King Heungdeok, Beginning of Ch 17) records as follows: “Kim Dae-ryeom, the envoy to Tang, came back with tea seeds, which the king ordered to plant near Jiri Mountain. Tea was present in our country since the day of Queen Seondeok, the 27th monarch of Silla, but this is when it truly became prevalent.”
Goryeo Dynasty (918~1392)	<i>Yi Gyubo</i> (1168~1241) reported in <i>Dongguk-isangguk-jib</i> that “To talk over the tea harvest in Hwagae, the local government encourages both the old and the young to harvest it. They harvest the tea leaves by the skin of their teeth and carried them over to the capital in loads.” This shows that Hwagae was a representative tea-producing region at the time, and the quality was excellent enough to be offered to the central government.
Joseon Dynasty (1392~1910)	<i>Ha Yeon</i> , the early Joseon Dynasty official who served successively as the governor of Gyeongsang-do Province, gave Hwagae tea of Hadong as a present to Minister <i>Min Euisaeng</i> going on a private trip to China, saying the following: “I have heard that Hwagaegol has some excellent tea. / It is as refreshing as tea of Yangseon Mountain, / and the value of its aroma is akin to precious metal and gems. / I send you this tea from my heart as a supplement to your trip.” <i>Choewi</i> , a Zen Buddhist master in the late Joseon Dynasty, praised the excellence of Handong tea in his panegyric titled <i>Dongdasong</i> : “In Hwagaedong near Jiri Mountain, tea plants grow over the area of 40 to 50 ris (15~20 kilometers)”.

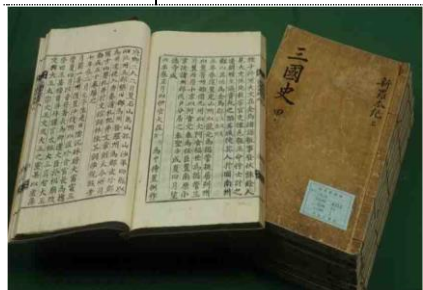


Photo 54. *Samguk Sagi*

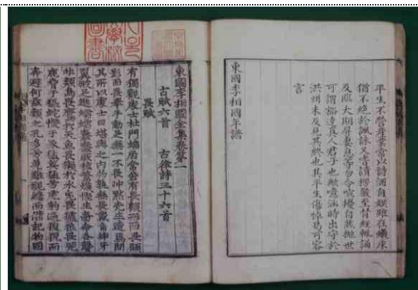


Photo 55. *Dongguk-isangguk-jib*



Photo 56. *Dongdasong*

V. Contemporary Relevance

1. Value of tea agriculture as a future resource

Development of processed goods using Traditional Hadong Tea

The geographic characteristics of Hadong-gun—being surrounded by *Jirisan* Mountain, *Seomjingang* River and *Hwagaecheon* Stream—has formed the suitable agrarian environment for tea cultivation. These points have allowed the traditional method of tea cultivation and processing technique to be maintained and lead the growth

of the green tea industry in Hadong. The amount of the industry output is 13.7 billion won, leaf sales accounting for 80% of it. Today, 20% of the Hadong-gun population works in the green tea industry and the work force is especially concentrated in Hwagae-myeon and Agyang-myeon within the region. There are 179 green tea and tea processing companies in operation, establishing foundation for production, processing and distribution of tea in cooperation with tea cultivating farms.

Recently, along with the well-being culture, new perspectives have emerged regarding natural health food and tea culture among the everyday lives of modern people. Green tea is a functional beverage entrenched in a long history worldwide. In recent recognition of its health effects such as cholesterol reduction, immunity enhancement, and anticancer effect, its use in other fields including bio-industry and food industry is becoming increasingly prevalent. Based on such trend, the Hwagae region aims to penetrate the global market by adding value to the tea industry.



2. Using tea culture as a tourism resource

Hadong Wild Tea Culture Festival and Hadong Tea Cultural Museum

Tea cultivating techniques and culture maintained and transferred from generation to generation have formed superb landscape of tea fields in harmony with Jiri Mountain in Hwagae. In the modern tourism industry, the excellence of tea culture and scenery is now utilized as the main resource of regional festivals and events.

Hadong Wild Tea Culture Festival has been held since May 1995 to spread the fact that Hadong is the home of traditional handmade tea, disseminate tea culture and unite the locals. During the festival, participants can enjoy the beautiful scenery of the sloping traditional tea fields and participate in a variety of tea culture trial programs.



Photo 59. Tea ceremony experience space in the Hadong Tea Cultural Museum

These programs include green tea-picking, traditional tea making, having tea with a monk at the First Tea Field, and tour of the First Tea Field, which can be experienced with all five senses and enjoyed by everyone. The Hadong Wild Tea Culture Festival, along with various programs to experience tea culture, has become the signature festival of the region that receives more than 400,000 visitors on average. Moreover, the Hadong Tea Cultural Museum opened in 2005 to introduce the value and meaning of traditional tea. The museum consists of Exhibition Room displaying traditional tea cultivating methods and tea equipment, and Experience Space in which visitors can learn tea ceremony and taste traditional tea.

Using traditional tea fields as tourism resources has served as a foundation for vitalizing the growth of tea culture and tea industry within a region. The nationwide increase in green tea demand and consumer base led to an increase in farm household income and vitalization of the local economy. Such change brought to the tea industry is now extending to the “6th Industry,” creating links with hospitality, food and experiential tourism industry.

Table 19. Visitor status of Handong and Wild Tea Culture Festival, and main programs

Classification	2011	2012	2013	2014	2015
Hadong-gun	3,025,466	2,545,349	2,449,701	3,682,132	5,240,395
Wild Tea Culture Festival	475,368	453,778	361,859	-	421,321

※ Source: Hadong County Office internal resource, Main tour site visitor statistics from Tourism Knowledge & Information System (tour.go.kr)



Photo 60. Picking tea leaves experience



Photo 61. Traditional tea manufacture experience



Photo 62. Tour of the First Tea Field

VI. Threats and Challenges

1. Difficulties of transmitting the traditional tea agriculture environment and techniques

a) Decline in labor force and aging population

Industrialization of cities after the 1960's and increasing productivity caused social changes in the Hadong region at a rapid rate. Urbanization drove the young generation out of the rural areas to cities, and as a result, Hadong-gun's population decreased from 60,848 in 1999 to 50,840 in 2015. Moreover, Hadong-gun was classified as aging society in 1999, and subsequently in 2003, as super-aging society. The ratio of population above 65 has gradually increased by 2~4% and now accounts for 28% of the entire population of Hadong-gun.

In particular, Hwagae-myeon has maintained its traditional manner of manual tea production, but the decline in labor force is posing a challenge to procurement of labor for management and maintenance of tea fields.

Table 20. Annual change of population in Hadong-gun

Classification		1999	2003	2007	2011	2015
Population		60,848	58,110	55,757	54,332	50,870
Above 65	Population	9,966	11,418	12,952	13,645	14,407
	Ratio (%)	16	20	23	25	28

※ Source: Hadong County Office annual statistics (2016)

b) Decline in productivity due to increasing fallow lands in the traditional tea fields

Aging in local population and shrinking labor force are the main cause of reduction in maintained tea fields and output. There were 2,016 farm households in 2012, but it dropped by 57 year-on-year reaching 1,956. Flatland tea fields formed around streams and the Seomjin River contribute to maintaining the surface area of tea cultivation in the entire region, but traditional tea fields on the slopes are becoming increasingly inactive due to difficulties in maintenance. Instead of tea plants, more profitable crops are often planted on these fields as well.

Table 21. Annual Tea cultivation status of Hadong-gun

Classification	2010	2011	2012	2013	2014	'14 year-on-year growth
Number of farm households	1,956	1,947	2,016	2,013	1,956	▽57
Cultivation area (ha)	1,022	1,010	1,032	1,042	1,014	▽28
Green leaf produced (ton)	2,327	2,169	1,952	1,967	1,974	△7
Income (100 million won)	285	245	280	241	220	▽2,100

※ Source: Internal data of Hadong County Office (2016)

2. Destruction of tea fields and surrounding environment

Hadong County Office has vitalized the local economy by facilitating 5.01 million domestic and foreign visitors in 2015 by developing tourist attractions such as Hwagae marketplace, House of Choi Champan, Ssanggye Temple, and Samseong Palace. However, development of tourist sites and ill-advised introduction of accommodation facilities like vacation homes and resorts nearby are damaging the originality of agricultural scenery in Hwagae-myeon. In addition, Pollution caused by the tourists such as littered waste and forest fires has become one reason that is damaging the mountainous traditional tea fields that have been maintained over one thousand years.



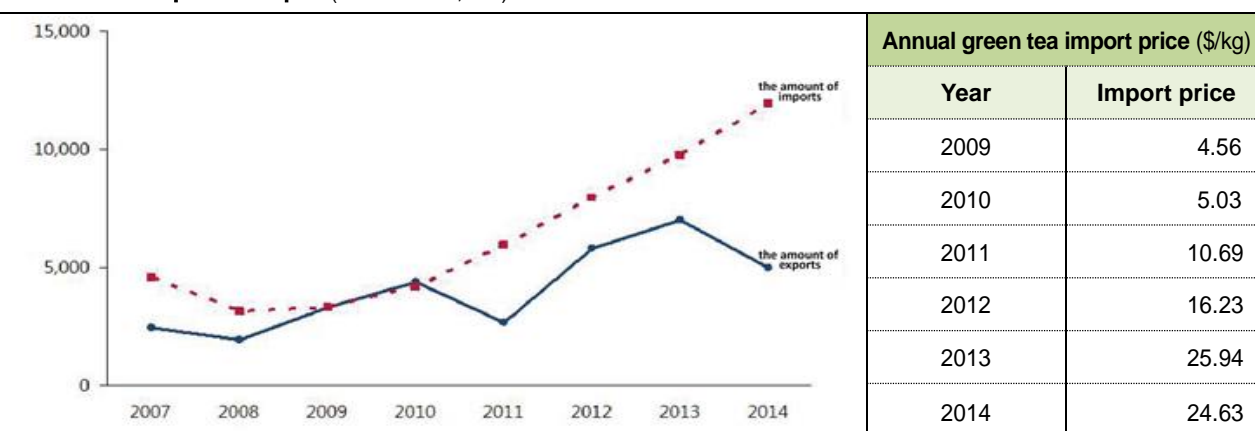
Photo 63. Kensington Resort in Hwagae-myeon

3. Losing competitive edge in the tea market due to increase in imports

Conclusion of the Free Trade Agreement with China, a major tea producer, is challenging the domestic tea agriculture. The trade amount of tea had stayed relatively equalized until 2010, but import began to outnumber

export in 2011. The increasing trend of tea import fueled by the FTA with China is expected to cause a decrease in domestic consumption and stagnant sales. Consequently, Hadong County Office and farm households in Hwagae must raise region-specific competitiveness in the stagnant domestic tea market, in terms of traditional tea production and distribution.

Table 22. Tea Import and Export (Unit: USD 1,000)



※ Source: Import and Export Trade Statistics, Korea Customs Service / Recent tea import trend, Korea Customs Service, July 2014

4. Maintaining traditional tea agricultural methods

Surrounded by Jiri Mountain, Hadong-gun whose mountains and forests account for 72% of its area is considered disadvantaged region for its lack of arable land. Most of its traditional tea fields are located along the mountain slopes, making it difficult for tea tree cultivation and mechanical work.

In order to overcome harsh environmental conditions, residents have formed traditional tea fields by managing wild tea plants growing along the valleys, hills and in between the rocks. Also, distinctive, high-quality handmade tea gained competitive edge in quality against that of other regions, in spite of its limited output.



Photo 64. Management of traditional tea field with natural farming methods

Hwagae residents have applied natural farming methods that conform to the environmental and climatic conditions of Jiri Mountain, maintaining the traditional tea cultivation and handcraft manufacturing and processing. They have established a natural farming system in which every element, from tea seed planting to cultivation and production, is in harmony with local environmental factors. Moreover, Hadong County Office has facilitated an initiative to have the entire region of agricultural heritage classified as pesticide-free zone in order to promote traditional tea as a safe, environment-friendly food with distinctive quality, which have secured sustainability of natural farming system.

5. Increasing consumer interest in health food

Tea is a high value-added resource that contributes to health enhancement. Recent findings show that tea helps calm one's body and mind, prevent dementia, achieve better academic performance, and strengthen concentration. With an increasing interest in health food, domestic consumers paying more attention to tea and demands are on a consequent rise. Products that use tea plants, such as tea leaves (green tea, black tea), green tea powder and green tea extracts, are used as raw ingredients by various products in the market.

Hadong is one of the major tea manufacturing sites in Korea and a proud producer of the world's most excellent traditional handmade tea producer. As such, Hadong is actively promoting a number of initiatives to strengthen domestic green tea industry, such as Green Tea Drinking Movement, vitalizing the Hadong Green Tea Research Institute, developing new programs for the Wild Tea Culture Festival, promoting traditional tea brand and reinforcing promotional events. Also, the *Act on Tea Industry Development and Tea Culture Promotion* was approved in the National Assembly on 29 December 2014, creating a foothold for expansion of the tea industry market.

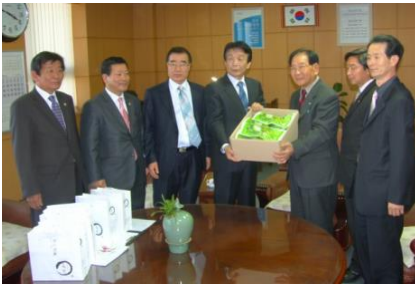


Photo 65. Hadong Tea Drinking Movement



Photo 66. Research activities in Hadong Green Tea Research Institute



Photo 67. The 20th Hadong Wild Tea Culture Festival

VII. Practical Consideration

1. Regional effort to be designated as GIAHS

a) Effort towards GIAHS designation and conservation activities by the local government

In acknowledgment of the value of traditional tea fields as an agricultural heritage, Hadong County Office is carrying on a variety of policies for sustainable conservation and development. It provides infrastructure and equipment required for sustaining tea agriculture to promote growth of tea farm households and tea-related enterprises, and holds the Hadong Wild Tea Culture Festival linked with traditional tea culture. Along with the multi-faceted use of traditional tea, Hadong County Office is also holding marketing promotions to introduce traditional tea and support tea market penetration of small-sized farm households.

In 2006, Hadong County Office initiated the network of industry, education and research by the Green Tea Industry



Photo 68. Hadong Green Tea Research Institute

Cluster and set up the mid-to-long-term plan for branded traditional tea production and management. The Green Tea Research Institute opened in 2007 as the only government-designated research center, promoting specialized initiatives such as establishing a joint green tea manufacturing facility and Hadong Green Tea Science Research Institute. By making traditional tea a prestige good, the tea industry is developed to lead regional growth and increase in local income. The Green Tea Research Institute provides technical support including safety analysis and testing to local green tea manufacturing enterprises. Also, it works to solve technical difficulties experienced by residents and processing companies, and carries joint cooperative initiatives with projects of other regions in order to enhance awareness of traditional tea.

b) Effort to conserve agricultural heritage: enactment of ordinance for traditional tea industry and community participation

「The Ordinance on Tea Industry Development and Tea Culture Promotion」 in Gyeongsangnam-do was proposed in 2012 (enacted in on 31 October 2013 as Ordinance no. 3858). In November 2014, more than 120 participants in tea-related industry such as Hwagae tea manufacturing businesses took actions in various angles, promoting on the National Assembly and holding seminars. Due to such effort, 「the Act on Tea Industry Development and Tea Culture Promotion」 was approved in the National Assembly.



Photo 69. Public-private partnership in conservation activities for traditional tea fields

Also, pursuing the need for utilizing traditional tea agriculture as a tourism resource and its continuous management, 563 out of 800 people from traditional tea farm households (70%) have submitted their consent recognizing the importance of traditional tea as an agricultural heritage and agreeing to actively participate in becoming part of Nationally and Globally Important Heritage Agriculture. To this end, Hadong County Office aims to share the traditional and cultural value of the Hadong tea agrosystem, and is promoting tea farm maintenance and management with joint effort of the public and private sectors.

c) Continuous cooperation with local organization of tea, residents and school

In 2012, Hadong County Office entered into an agreement with local residents and tea manufacturing farm households for mutual cooperation of conservation of agricultural heritage and continuous maintenance. Upon the agreement, the action plan on scenery conservation of tea agricultural heritage and enhancing farmer awareness on agricultural heritage was initiated. The first initiative taken was the maintenance and management of 200 ha of wild tea fields in Hwagae-myeon. Besides addressing the pollution by tourism, Hadong County Office is also pushing ahead with various eco-friendly measures to tackle climate change in order to become a green resort city. Such huge effort made the region win the ecology-culture category in Korea Environmental Awards.

Moreover, Hadong County Office established the action plan for fostering tea industry in 2014 to create and maintain continuous income and to instill pride for farm households; the project was set out to prepare the foundation for mechanizing tea farms, promote growth of processing industry, and build infrastructure for green tea manufacturing. Also, Hadong County Office is a supplier of green tea to food service facilities in schools in order to secure potential demands of local teenagers and promote Love for Green Tea Movement. Recently, a joint plan for brand packaging was initiated for standardization and marketing of Hwagae traditional tea, following its registration as a product of geographical indication in 2003.



Photo 70. Gyeongnam School Food Expo (Hadong Office of Education)

2. Promoting projects for conservation and utilization of agricultural heritage

a) Promoting various integrated projects for fostering green tea industry

Hadong County Office aims to foster globally-acknowledged high-quality green tea by conducting research on integration with other industries and its vitalization. In 2015, Hadong County Office invested 2 billion won to enhance competitiveness of the local car industry, in the following projects: maintenance of work paths for part mechanization of flat tea fields; safety analysis support; supplying machineries (distributing compost, high-temperature drying, tea leaf picking) to reduce labor cost; developing tourism items such as massaging products using green tea (body oil, cleansing products, beauty masks) and green tea experiencing kit; providing recipes for green tea cuisine; processing; tea bag production; joint packaging; and processing of tea powder.

At present, Hadong County Office is exporting green tea powder to several countries of the European Union and the United States and increasing the volume. In January 2017, it signed an export contract with the world's largest coffeeshouse chain Starbucks to provide 100 tons of green tea powder. This environment-friendly tea powder is gained by processing 600 tons of tea leaves harvested by the region's 200 tea-farming households, and is of high quality and good taste. Hadong County Office has also established cutting edge facilities to produce highest-quality green tea in Hadong Green Tea Laboratory. Moreover, as an attempt to increase the consumption of Hadong's green tea, foster small-sized agrarian product processing companies and create more job opportunities, Hadong County Office is focusing on developing processed foods based on green tea to follow the recent green tea processed food trend.

Furthermore, Hadong County Office plans to develop and operate a variety of programs creating a linkage with regional tourism resources as follows: experiential programs related to health therapies; tea cafes for promotion and sales of tea-related products; pottery and red clay experience programs; creating healing zones and establishing green tea hiking course; program linking "tea repose" and temple-stays. Also, Hadong County Office

will broaden its domestic and foreign distribution channels, promote green tea products on media, and hold off-line promotion and advertisement fairs to develop the market and gain brand prestige.

Table 23. Initiated projects for fostering green tea industry

Project	Date of Initiation	Budget (KRW 1,000)
Establishing infrastructure for breeding of selected superior genes	2006. 10	4,930
Developing Traditional hadong tea BI: King's green tea	2007. 05	19,110
Securing designation of Hadong as Wild Tea Special Zone	2007. 05	20,000
Developing mitigation and prevention technologies against frost damage on tea plants	2013. 03	30,000
Consulting service for green tea manufacturing and processing enterprises	2013. 05	10,000

b) Fostering Hadong eco-friendly agriculture

Hadong County Office has focused on promoting the growth of eco-friendly agriculture as a policy for building trust between consumers and producers. In particular, it has operated a variety of organic programs by installing EM (effective microorganisms) production facilities based on the education program on eco-friendly agricultural products. There was some progress in this direction: it enacted *the Ordinance on Support of Eco-friendly Agriculture* in 2012, was selected as the best institution for the use of eco-friendly fertilizers in the country, and 2,032ha of 42 crops produced in Hadong-gun was environment-friendly certified. Starting from 2015, Hadong County Office is carrying out “Pesticide-free Earth” project, focusing on Hwagae-myeon for the purpose of awareness-sharing between consumer and producer, environmental protection and production of safe food. The project will expand production of pesticide-free agricultural products, foster growth of tourism-agriculture based on production, processing, experience and lodging, and broaden the market base by establishing distributional infrastructure and branding.

3. Organizational effort of Hadong residents to conserve and manage Traditional tea

a) Transmission of traditional tea culture by local tea people

Traditional tea fields in Hwagae region are found in between rocks of the mountain foot, making it difficult for any mechanical work with difficult conditions for cultivating tea plants. Accordingly, most of the work is done manually. Therefore, the region’s driver for competitiveness comes from producing high-quality handmade tea in a limited amount, continuously passing down traditional tea processing technique.

The tea people of Hwagae had obtained basic knowledge of tea making from their parents at a young age. Also, some farm households inherited tea manufacturing techniques that had been passed down among the monks of Ssanggye Temple of Hwagae. To this day, they continue to study traditional tea manufacturing based on the

records in Monk Choeui's *Dasuh* (a book on tea culture), and practice from long-entrenched experience. Regarding this matter, the locals host a tea tasting event annually as Hadong Tea Producers' Committee so they can improve the quality of their traditional tea and exchange tea processing techniques. In the tea tasting event, comparative evaluation on five things the appearance, the color of the tea, fragrance, taste, infused tea leaves is conducted based on the Korean tea quality evaluation criteria. The one that gets the highest mark by both experts and consumers is chosen as "the year's nice tea," and the farm receives various technical supports ranging from tea cultivation to processing so that the farms in the area can grow in a short period of time.

Three out of six Nationally Designated Tea Masters in 2016 (by the Ministry of Agriculture, Food and Rural Affairs) were from Hwagae-myeon, namely: Park Su-geun, the master of traditional handmade green tea; Kim Dong-gon, the master of traditional iron-roasted green tea; and Hong So-sool, the master of bamboo brazier-brewed tea. The three masters, as well as Jo Tae-yeon Family, the pioneer of handmade roasted tea, are playing a leading role in local tea culture and propagating the knowledge system and traditional culture of tea agriculture. Doshim Tea Field, which owns the Best Tea Plant, is a family business that has been carried down for seven generations. In order to study the diversity of wild tea fields, parts of the field are left in its natural form and untouched to observe the interaction with surrounding vegetation including bamboo trees.



Photo 71. Park Su-geun, the master of traditional handmade green tea



Photo 72. Kim Dong-gon, the master of traditional iron-roasted green tea



Photo 73. Hong So-sool, the master of bamboo brazier-brewed tea

b) Vitalization of *Pumasi-dan* as Hadong's traditional local communal culture of its agrarian society

In Hadong-gun, tea cultivation and production is conducted by small families of three or four members in general, and many of them are small-income farmers that do not even have basic processing facilities. In order to overcome this condition, farm laborers formed *Puamsi-dan* (Korea's traditional form of labor exchange that was done in most local communities) units in the form of cooperative association. Currently, those *Pumasi-dan* units operate with a principal of "Chaeda (handpicking of tea leaves) and Jeda (tea making) in group" to improve their labor productivity. Members of these units use the communal tea-processing facilities and sell tea processed products



Photo 74. Operation of *Pumasi-dan* units with a principle of *Chaeda* and *Jeda* in group

under the same brand name. There are also study groups in the units which study management of tea trees, tea-making methods and tea-processing techniques, so they can apply the agrarian techniques learned through many years of experiences to the cultivation more efficiently.

Every year during the *Chaeda* season, Hadong County Office expands its volunteer assistance service, which is supported by the local community service centers and other public institutions, to the local communities in the region, and the volunteer service program is run with the active participation of the local young men’s association and married women’s association. *Pumasi* units are formed and supported in this way and gets help from the volunteers in the seasons when they are short-handed for the crops they grow.

c) Strengthening local capability for understanding of the value of traditional tea and conservation practices

Hadong County Office runs an education program for Hadong residents every January on eco-friendly agricultural practices, including soil management, cultivating techniques, pesticide safety analysis, and green certification. As for processing enterprises, green tea masters from abroad are invited to hold an educational session on processing methods, enhancing the quality of tea processing in the region. Furthermore, Hadong County Office produces and distributes story books on the history and culture of tea in the region to be used as educational material on traditional tea agriculture for local students.

Hadong County Office collects various opinions from the region by holding regular discussion and debate sessions with residents. Also, it actively communicates with external professional institutions to share tea cultivating techniques and appreciate academic and cultural values of tea.

Table 24. MOU for popularization of Hadong tea

Institution	Format	Major performances
Council of Municipality Research Centers (Cooperation organization)	Conference	- Attendance: Heads of the research centers - Content: Conference workshop
East-West regionally specialized project exchange (Cooperation organization)	MOU	- Business agreement concluded
World Tea Culture Exchange (Cooperation organization)	MOU	- Business agreement concluded
China Bokgungung Muisansi Tea Science Research Center (Cooperation organization)	MOU	- Business agreement concluded
Mokpo University International tea culture Industry research center (Cooperation organization)	MOU	- Business agreement concluded

Table 25. Education of tea producers

Type	Date	Target	Major performances
Forum	2012.09.19	Public officers, school authorities, tea manufacturers	Debate on enacting ordinance for utilization of traditional tea for elementary, middle and high school meals in Gyeongsangnam-do
Forum	2012.11.16	Public officers, school authorities, tea manufacturers	Prevention of food poisoning by encouraging students to drink green tea, and avoiding cavity by gargling
Forum	2013.04.20	Tea producer: organization/residents	Joint school food system using local food, including traditional tea
Symposium	2013.05.02	Tea related industry participants/residents	Academic assessment of traditional tea culture and industry
Methodology Education	2014. 10. 30	Fermented tea processing households	Education on production process of microorganism-fermented tea
Methodology Education	2014. 10. 30	Fermented tea processing households	Dissemination of the processing techniques for the region's traditional folk tea, <i>Jaeksal</i>

Table 26. Brochures to strengthen local capability regarding green tea

<p>The Reasons Why Green Tea is Good for Our Health</p>	<p>Tea and Hadong</p>	<p>Green Tea Story of Korea</p>
<p>Finding Korean Premium Tea</p>	<p>High-Quality, Hwagae Traditional Tea</p>	<p>Promotional Sourcebook on Korean Tea Culture and Industry</p>

VIII. Action Plan for the Proposed GIAHS Site

1. Establishing visions for conservation and management of Traditional Hadong Tea Agrosystem

First, the action plan has a conservation management and support system for agricultural heritage

The traditional hadong tea agriculture is a system that has been maintained for 1,200 years; to this day, traditional handmade tea is produced by managing tea fields using natural methods, and picking and roasting tea leaves manually. Moreover, the traditional tea fields form an extraordinary landscape in harmony with the surrounding Jiri Mountain, and serve as a habitat for diverse fauna and flora with their ecological characteristics intact.

However, due to the aging farm population and a reduction in tea consumption, the local tea industry has been experiencing a steady decline in tea farm area, households and income. Moreover, the traditional tea agricultural system is directly facing a risk of losing labor force and its scenic value from indiscriminate development. Therefore, the action plan proposes a conservation management and support system for traditional tea production, agricultural techniques, the surrounding ecosystem and scenery.

Second, the action plan strengthens the internal capability to uphold and pass down the value of Traditional hadong tea agrosystem

As a major occupation for most residents for a long time, Traditional hadong tea farming has built its own knowledge system in historical context such as various agricultural skills and customs. This traditional knowledge system is to be carried on together by nationally designated local tea masters and tea cultivating households, so that the tea business can be passed down as a family business.

Currently, understanding the value of passing down the traditional tea agriculture is quite undermined. Awareness on the meaning and value of agricultural heritage must be raised on a regional level. To this end, the action plan encourages the social attention on the traditional tea agricultural system and promotes the cultural transmission and integrated use. In particular, it seeks to strengthen the capability of local residents as the main agent of transmission activities.

Third, the action plan propagates the multifaceted value of Traditional hadong tea agrosystem as an agricultural heritage.

Traditional hadong tea agrosystem has been designated as a Korea's Important Agricultural Heritage in recognition of its historic, cultural, ecological and scenic values, and further public understanding and sharing of these values is required. Therefore, the action plan is to develop and carry multifaceted resource utilization projects, along with preparing the foundation for the heritage's conservation management.

In this respect, the diffusion and sharing of the values inherent in Hadong agricultural heritage is to be pursued in cooperation with domestic and foreign agricultural heritage-related institutions and regions such as FAO and ERAHS, building up a cooperative system.



Figure 19. Fundamental direction of Traditional Hadong Tea Agrosystem conservation and management

2. Action plans to conserve and utilize Traditional Hadong Tea Agrosystem

The maintenance and conservation of agricultural environment

The physical environment of the traditional tea field is to be maintained and managed as an internally integrated result of ecological and cultural values from a scenic point of view. To this end, a support system must be created and aligned to methodically approach the conservation management of traditional tea fields. Also, the action plan proposes initiatives to add values to the tea industry in order to improve the quality of life for local residents, based on conservation of biodiversity and landscape within the agricultural heritage.

Understanding and transmission of the knowledge system

The knowledge system of Traditional hadong tea agriculture, remaining in the local agricultural skills, custom and culture, carries the value of inherited legacy reflecting its 1,200-year history and must continue to be passed down from generation to generation. For the residents who will play a central role in the transmission activities, the action plan proposes education of agricultural skills and vitalization of tea culture in people’s daily lives to raise the local awareness of agricultural heritage. Furthermore, the action plan aims to foster local experts as a present and future agent of the value inherent in Traditional hadong tea industry as an agricultural heritage.

Exchange and promotion of values found in Traditional Hadong Tea Agrosystem

Activities are to be carried out to propagate the value of Traditional hadong tea agrosystem, in forms of knowledge exchange with not only various persons within the region but also with domestic and foreign agricultural heritages. Also, the value of traditional tea agriculture as an agricultural heritage will no longer be regarded as a resource limited to Hadong’s use. Social and cultural relationships are to be constructed with nearby regions around Jiri Mountain and tea-related agricultural heritages within GIAHS to establish a cooperative conservation management system.

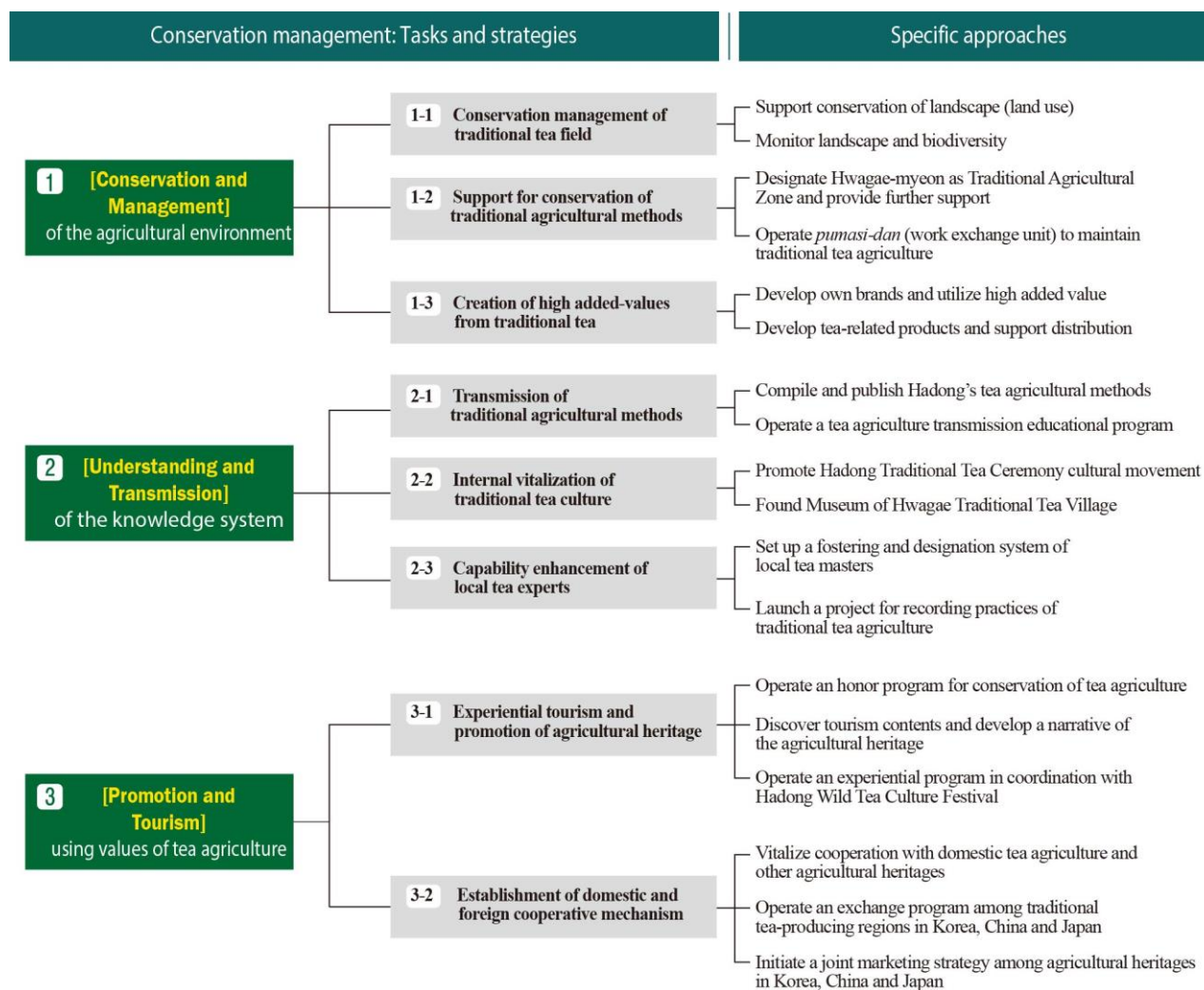


Figure 20. Project framework for the conservation management of Traditional Hadong Tea Agrosystem

3. Step-by-step Business Operation Plans of the Action Plans

Short-term: Establishment of Foundation for Conserving Traditional Hadong Tea Agrosystem

The basic goal is to conserve and manage the agricultural heritage according to the FAO GIAHS main management indexes. In particular, an operation system governed by experts in agricultural heritage and ecology will be established for an accurate assessment of the plans' feasibility and effectiveness.

Cooperation network between the councils, municipalities, local residents, local and regional experts, private organizations and private operators will be built to realize the step-by-step business plans of the action plan. Through the cooperation network, programs to improve the local farms' capability with their agricultural heritage will be regularly conducted for them, and monitoring of the results of the plans will be carried out.

Mid-term: Sustainability of Traditional Hadong Tea Agrosystem

The knowledge system of Traditional hadong tea agriculture, remaining in the local agricultural skills, custom and culture, carries the value of inherited legacy reflecting its 1,200-year history and must continue to be passed down from generation to generation. For the residents who will play a central role in the transmission activities, the action plan proposes education of agricultural skills and vitalization of tea culture in people's daily lives to raise the local awareness of agricultural heritage. Furthermore, the action plan aims to foster local experts as a present and future agent of the value inherent in Traditional hadong tea industry as an agricultural heritage.

Long-term: Increasing the National/Global Competitiveness of Traditional Hadong Tea Agrosystem

Based on the Traditional hadong tea farming system, combination of the traditional technology of Hadong tea with the high-tech science and technology will be pursued as the long-term goal. For this goal, agricultural products and processed foods that are produced with high productivity and can generate high added-values and stand out from other products will be selected. Support will be provided for these products to enter the global market, so their entries can lead to the global advertisement and marketing of the region's agricultural heritage.

Table 27. Step-by-step Business Operation Plans of the Action Plans

Type	Short-term (2017~2018)	Mid-term (2019~2021)	Long-term (2022~2025)
Goals	<ul style="list-style-type: none"> – Set basic goals for agricultural heritage conservation – Establishment of conservation committee – Support for the resident's activity and capability building 	<ul style="list-style-type: none"> – Restoration of Traditional Tea Agriculture Environment – Transmission of Traditional Tea Agriculture Techniques – Vitalization and Advertisement of Agricultural Heritage 	<ul style="list-style-type: none"> – Generation of high added-value from traditional tea – Activation of Rural Traditional Tea Culture – Establishment of National and Global Cooperation Network
Monitoring	<ul style="list-style-type: none"> – Predictive Monitoring 	<ul style="list-style-type: none"> – Monitoring on Operation 	<ul style="list-style-type: none"> – Monitoring on Operation
Evaluation Criteria and Management	<ul style="list-style-type: none"> – Changes after the registration on GIHAS 	<ul style="list-style-type: none"> – Social and economic effects by the preservation 	<ul style="list-style-type: none"> – Pluralistic utilization values of the Traditional hadong tea agrosystem along with its national and global competitiveness
In-depth Strategy	<ul style="list-style-type: none"> – Monitoring Evaluation – Participation of Agricultural Heritage Experts 	<ul style="list-style-type: none"> – Evaluation of Restoration – Teahouse Fine Tea Conservation Committee's taking charge 	<ul style="list-style-type: none"> – Evaluation of growth-index of Hadong tea industry – Round-up of the evaluations from Conservation Committee

Section 1. Traditional Hadong Tea Agrosystem Environment Conservation and Maintenance

Action Plan	1. Conservation and management of traditional tea fields
Current status and challenges	<ul style="list-style-type: none"> - As domestic tea business is in recession, non-cropping in the traditional tea field and cultivation of different crops in the tea field is increasing. - Studies are conducted on the subject of the scenery and ecological characteristics and functions of traditional tea fields and the impact the traditional tea fields has on the surrounding natural environment. - Development of a Eco-museum for sightseeing using the scenery value of traditional tea field is underway.
Objectives	<ul style="list-style-type: none"> - Establishment of practices for restoration of agricultural environment and management to protect and preserve the values that biodiversity and scenery of traditional tea field have. - Arrangement of a system to monitor changes in the habitation of animals and plants, and landscape in the agricultural heritage area.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Support conservation of landscape (land use)	<ul style="list-style-type: none"> - Establishing DB of idle lands to prevent non-cultivation in traditional tea field - Improving the awareness and promoting engagement of residents for conservation of agricultural heritage 	(1) Hadong agricultural heritage T/F		↑				<ul style="list-style-type: none"> - Conducting an assessment of traditional tea cultivation with regard to selected agricultural heritage regions - Hosting town workshops and seminar for scenery conservation support project of traditional tea field
	<ul style="list-style-type: none"> - Invigorating related businesses and conserving the productive and cultural aspect of agricultural environment 	(1) Hadong agricultural heritage T/F			↑			<ul style="list-style-type: none"> - Drafting standards for projects to support scenery conservation of Hwagae traditional tea field adapted to each region's conditions - Providing subsidies to farms or organizations that manage traditional tea field and monitoring their progress
Monitoring scenery and biodiversity of traditional tea field	<ul style="list-style-type: none"> - Establishing a voluntary monitoring system for conservation of cultural scenery elements of traditional tea field 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council			↑			<ul style="list-style-type: none"> - Developing monitoring indices to monitor the characteristics of the ecology and scenery of agricultural heritage regions and drafting implementation plans - Forming a residents' traditional tea agriculture research group and reinforcing foundation competence
	<ul style="list-style-type: none"> - Understanding changes in cultural scenery and supporting the efforts to restore tea fields in the region 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council					↑	<ul style="list-style-type: none"> - Conducting a monitoring investigation with resident traditional tea agriculture research group and experts - Developing a monitoring map of cultural scenery of traditional tea agriculture and initiating a restoration project in damaged areas

Section 1. Traditional Hadong Tea Agrosystem_Environment Conservation and Maintenance

2. Supporting Preservation of Traditional Hadong Tea Agriculture methods																																														
Action Plan																																														
<p>Current status and challenges</p> <ul style="list-style-type: none"> - Due to increase in labor costs and aging in agriculture population, tea is produced in only fifty per cent of the total traditional tea field areas. - Due to the geographical characteristics of tea fields i.e. slanted lands and rocky areas, mechanization of traditional tea field management is inherently limited. - The number of farms abandoning traditional tea fields is increasing because of difficulties in processing and distribution. 																																														
<p>Objectives</p> <ul style="list-style-type: none"> - Seeking for measures to manage traditional tea fields and the neighboring areas where the characteristics of Traditional hadong tea agrosystem are conserved. - Establishing cooperative management system of traditional tea fields in response to shortage of manpower in the region. 																																														
Initiative	<table border="1"> <thead> <tr> <th data-bbox="523 217 608 698" rowspan="2">Purpose of Initiative</th> <th data-bbox="523 217 608 1120" rowspan="2">Implementing Organization</th> <th colspan="5" data-bbox="523 217 608 1948">Year</th> <th data-bbox="523 217 608 1948" rowspan="2">Details of activities to achieve purpose</th> </tr> <tr> <th data-bbox="523 217 608 1120">2017</th> <th data-bbox="523 217 608 1120">2019</th> <th data-bbox="523 217 608 1120">2021</th> <th data-bbox="523 217 608 1120">2023</th> <th data-bbox="523 217 608 1120">2025</th> </tr> </thead> <tbody> <tr> <td data-bbox="608 217 788 2045"> <ul style="list-style-type: none"> - Establishing a management system for traditional tea fields in the designated agricultural heritage area that needs protection and management </td> <td data-bbox="608 217 788 1120"> <ul style="list-style-type: none"> (1) Hadong agricultural heritage T/F (2) Hadong Tea Producers Council </td> <td data-bbox="608 217 788 1120"></td> <td data-bbox="608 217 788 1120"></td> <td data-bbox="608 217 788 1120">↑</td> <td data-bbox="608 217 788 1120"></td> <td data-bbox="608 217 788 1120">↑</td> <td data-bbox="608 217 788 1948"> <ul style="list-style-type: none"> - Developing a guideline for management of traditional agricultural district in Hwagae-myeon - Signing a management operation agreement with the managing body of traditional tea fields (farms) </td> </tr> <tr> <td data-bbox="788 217 991 2045"> <ul style="list-style-type: none"> - Attracting plural utilization of agricultural heritage based on Traditional hadong tea agrosystem </td> <td data-bbox="788 217 991 1120"> <ul style="list-style-type: none"> (1) Hadong Tea Producers Council and Local communities (2) Hadong agricultural heritage T/F </td> <td data-bbox="788 217 991 1120"></td> <td data-bbox="788 217 991 1120"></td> <td data-bbox="788 217 991 1120"></td> <td data-bbox="788 217 991 1120"></td> <td data-bbox="788 217 991 1120">↑</td> <td data-bbox="788 217 991 1948"> <ul style="list-style-type: none"> - Operating Hwagae-myeon traditional agricultural district (activities for agricultural production and experience tourism) - Inspecting the managing body of traditional agricultural district whether the management operation agreement was fulfilled </td> </tr> <tr> <td data-bbox="991 217 1197 2045"> <ul style="list-style-type: none"> - 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<p>Managing labor exchange groups of traditional tea</p>																																														

Section 1. Traditional Hadong Tea Agrosystem_Environment Conservation and Maintenance

Action Plan	3. Creating high added value through traditional tea
Current status and challenges	<ul style="list-style-type: none"> - Eco-friendly certification of tea producing farms is supported as geographical indication system of Hwagae traditional tea was implemented and it was also designated as a pesticide-free district. - It is hosting Hadong Wild Tea Culture Festival every year and various experience programs are operated in public facilities in the communities and towns. - Hadong Wild Tea Museum opened recently, and a tea garden is under construction in Jeongeum village with support from the public.
Objectives	<ul style="list-style-type: none"> - Boosting customer confidence in traditional tea products and seeking new markets by utilizing KIAHS and GIAHS branding of Traditional hadong tea agrosystem. - Improving the agricultural competitiveness of the agricultural heritage regions and boosting the will of the tea farmers to cultivate by transitioning the traditional tea agriculture into the senary industry i.e. the sixth industry, an integration of production, processing, distribution, tourism.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Brand development and utilization of high added value in traditional tea agriculture	- As a designated agricultural heritage region, reinforcing the differentiation and competitiveness of the products compared to that of other tea producing regions	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council			↑			- Drafting standards for application of KIAHS and GIAHS brands
	- Utilizing the strengths and value of the agricultural heritage to revitalize the agricultural economy	(1) Hadong agricultural heritage T/F			↕			- Developing a co-brand and designing product packages using the values and meanings of agricultural heritage
Developing traditional tea products and supporting distribution	- Combining eco-friendly farm produce and traditional tea of Hadong based on co-branding	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities			↑			- Developing and distributing local food which is a convergence of local produce and traditional tea products
	- Seeking for a new market opportunity by using goods jointly produced and processed by labor exchange groups	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities			↑			- Developing and distributing recipes for traditional teas - Establishing a foundation for a co-brand of traditional tea franchise

Section 2. Understanding and Passing on the Knowledge System of Traditional Hadong Tea Agrosystem

Action Plan	1. Transmission of traditional tea agriculture technology
Current status and challenges	<ul style="list-style-type: none"> - Studies on the knowledge system of Traditional hadong tea agrosystem are being cited in the works of some researchers studying related areas, but it is not systematically organized. - It is imperative to discover contents and establish databases on the trends of traditional agricultural knowledge by gleaning data from ancient documents to more recent researches, and to educate people of traditional agricultural knowledge to pass on and preserve the knowledge.
Objectives	<ul style="list-style-type: none"> - Preparing the foundation for the transmission of traditional agriculture technology to overcome the risk of extinction of the technology as the population is decreasing and aging, while the tea industry is declining. - Compiling technological manuals to disseminate and utilize the traditional agriculture technology used to manage traditional tea fields and to produce tea. Reinforcing management competencies of traditional tea fields by implementing on-site education for farmers.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Compilation of technological manuals on the traditional tea agriculture	<ul style="list-style-type: none"> - Forming an organization that decides the directions to edit technological manuals and foundation plans, which also conducts data investigation 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Forming and operating Traditional Tea Agriculture Technological Manual Compilation Committee - Conducting a data investigation on traditional tea agriculture technology
	<ul style="list-style-type: none"> - Designing the manual minding that the manuals will be used in real-life agricultural activities of local farms 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Compiling and distributing the manuals for both the beginners and professionals in traditional tea agriculture technology
Managing technology transmission educational program for the traditional tea agriculture	<ul style="list-style-type: none"> - Establishing tea agriculture education system for transmission of knowledge based on traditional tea agriculture technological manual 	(1) Hadong agricultural heritage T/F						<ul style="list-style-type: none"> - Establishing a transmission network that consists of traditional tea experts from or outside the region - Initiating traditional tea agriculture technology education for experts of traditional tea agriculture
	<ul style="list-style-type: none"> - Promotion of activities related to transmission of traditional technology by launching historical research event 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council						<ul style="list-style-type: none"> - Operating historical research event that engages participation from students in conjunction with traditional tea agriculture transmission program

Section 2. Understanding and Passing on the Knowledge System of Traditional Hadong Tea Agrosystem

2. Voluntary facilitation of traditional tea culture	
Action Plan	
Current status and challenges	<ul style="list-style-type: none"> - Currently, traditional ritual cultures related to tea such as <i>pungdajae</i> and <i>heondarye</i> are being handed down between residents of Hwagae. - Tea-related activities and education are continuously provided in Hadong tea promotions unit, Hwagae Tea People's Association and Hwagae Elementary School. - Hadong Wild Tea Museum is located in Hwagae region, and it is possible to use the place as a hub for dissemination of tea culture in the region.
Objectives	<ul style="list-style-type: none"> - Strengthening the position of Hadong as the center of tea culture by vitalizing a series of activities for restoring customs and culture that utilized tea with the engagement of Hadong residents. - Increasing the demand and interest of traditional tea by disseminating the unique traditional tea culture of the region.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Promotion of cultural movement about the traditional tea ceremony	- Promoting tea culture and inducing the dissemination of tea culture in daily customs as a measure to vitalize traditional tea culture of Hadong	(1) Hadong agricultural heritage T/F			↕	↕	↕	<ul style="list-style-type: none"> - Restoring the traditional tea culture and running a campaign for residents of Hadong-gun - Initiating promotional activities using online platforms e.g. social networking services to expand the campaign on a national level
	- Inducing the engagement of residents of Hadong and cities by providing educations and demonstration of tea culture	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities			↕	↕	↕	<ul style="list-style-type: none"> - Running traditional tea culture demonstration programs to induce the engagement of Hadong residents - Running traditional tea culture transmission events by joining programs with local festivals and events
Creation of traditional tea village museum in Hwagae	- Building a hub for transmission and exchange of traditional tea agriculture by utilizing the underused spaces in the area	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council					↕	<ul style="list-style-type: none"> - Building a traditional tea agriculture theme museum by utilizing underused spaces in Hwagae region - Initiating exhibition and education programs in conjunction with traditional tea agriculture recording project
	- Vitalizing experience programs on tea culture run by local residents such as traditional tea masters	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities					↕	<ul style="list-style-type: none"> - Placing a curator in Hwagae traditional tea village - Running various programs such as explanations on the contents of the exhibition, traditional tea-making experiences, tour of traditional tea fields

Section 2. Understanding and Passing on the Knowledge System of Traditional Hadong Tea Agrosystem

3. Capacity enhancement for local experts of the traditional tea agriculture	
Action Plan	
Current status and challenges	<ul style="list-style-type: none"> - Most tea farms in Hadong have been producing tea for generations, and they possess various knowledge on traditional tea agricultural system. - Among the food masters designated by the Ministry of Agriculture, Food and Rural Affairs, three traditional tea masters are from Hwagae region, and transmission education by masters on traditional agricultural system is in practice. - Hadong County Office is discovering and raising local masters in production, Manufacturing and processing of agricultural products by enacting the ordinance on operating the program for raising masters of agricultural products in Hadong-gun.
Objectives	<ul style="list-style-type: none"> - Reinforcing the competencies of residents who have professional knowledge and experiences on traditional tea agriculture. - Training 'agricultural heritage local experts' who will become a leader in transmitting the traditional knowledge system of Traditional hadong tea agrosystem.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Managing training and selection systems for the local traditional tea master in Hadong	- Boosting the confidence of farms that possess professional knowledge on traditional tea agriculture	(1) Hadong agricultural heritage T/F						<ul style="list-style-type: none"> - Initiating the examination of the owner of traditional tea fields to find out who possess natural farming technologies - Designating the people who possess natural farming technologies as masters of Hadong and establishing a support system
	- Training multidisciplinary local masters in the field of traditional tea agriculture of Hwagae region	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council			↕	↕	↕	<ul style="list-style-type: none"> - Discovering and designating local masters on management of traditional tea fields; tea leaf picking, tea leaf making and other tea agricultural areas - Supporting efforts for transmission of knowledge by designating them as resident lecturer in tea agriculture traditional technology transmission academy
Managing recording projects on traditional tea culture of Hwagae	- Vitalizing the resident-participating recording projects that bridge the past and present of tea agriculture	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities			↕	↕	↕	<ul style="list-style-type: none"> - Initiating education to train recording expert on traditional tea agriculture - Collecting tangible and intangible data (photos, videos, documents) on traditional tea agriculture in Hwagae region
	- Establishing measures to manage and utilize the recordings on traditional tea culture of Hwagae region	(1) Hadong agricultural heritage T/F					↕	<ul style="list-style-type: none"> - Establishing an archive of traditional tea agriculture documents - Utilizing the data as contents for exhibition at Hadong Wild Tea Museum and town museum

Section 3. Promotion and Tourism of Traditional Hadong Tea Agrosystem

1. Managing agricultural heritage experience tourism and publicity programs	
Action Plan	
Current status and challenges	<ul style="list-style-type: none"> - Hadong Wild Tea Culture Festival is hosted every year, but the programs are not differentiated from others as they exhibit and sell products related to elements for experiences. - To become a leading tea culture festival in Korea, it is imperative to break away from general practices of local festivals and develop value sharing programs for agricultural heritage.
Objectives	<ul style="list-style-type: none"> - Introducing various promotional and tourism contents to share the values of Traditional hadong tea agrosystem and induce participation from the citizens. - Planning to turn agricultural heritage into a tourist attraction by developing and operating experience programs utilizing the cultural scenery of agricultural heritage regions.

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Managing owner systems of traditional tea agriculture	<ul style="list-style-type: none"> - Fostering an exchange business for citizens to experience traditional tea agriculture first-hand and support local efforts for conservation 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities			↕			<ul style="list-style-type: none"> - Operating an owner system to conserve Traditional hadong tea agrosystem - Running a joint-management program of traditional tea fields with participation from citizens
Developing contents and storytelling elements of traditional tea field trip	<ul style="list-style-type: none"> - Vitalizing a storytelling walking tour course that shows the historical features and local characteristics of agricultural heritage regions 	(1) Hadong agricultural heritage T/F			↕			<ul style="list-style-type: none"> - Initiating investigation on the storytelling contents of Traditional hadong tea agrosystem and other resources that could be linked with this - Hosting workshops for nine villages' residents of Hwagae
Managing experience programs in connection with the Hadong Wild Tea Culture Festival	<ul style="list-style-type: none"> - Vitalizing the festival programs by using visiting courses and strengthening external cooperation 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Developing visiting courses and infrastructure in agricultural heritage region based on the collected data - Initiating traditional tea agrosystem docent training programs for Hadong tea promotions unit and residents - Running broad festival programs utilizing the visiting courses - Running culture exchange programs e.g. building promotional facilities between Korea, China, and Japan on traditional tea

Section 3. Promotion and Tourism of Traditional Hadong Tea Agrosystem

2. Building domestic and international cooperation systems regarding tea agriculture	
Action Plan	
Current status and challenges	<ul style="list-style-type: none"> - It is imperative to initiate a new invigorating business utilizing traditional tea as the popularity of substitute goods such as coffee is reducing the consumption of tea and competitiveness is decreasing - It is important to push forth the registration of GIAHS of Traditional hadong tea agrosystem and to establish an exchange cooperative system between East Asian regions such as Korea, China, and Japan based on the superior quality of traditional tea.
Objectives	<ul style="list-style-type: none"> - Securing multidimensional exchange contents for continuous development of agricultural resources regarding tea production, processing, sales and services (i.e. tourism) and preparing counterstrategy - Securing internal drive to disseminate the values of traditional tea agricultural system as an agricultural heritage and lead international promotion marketing

Initiative	Purpose of Initiative	Implementing Organization	Year					Details of activities to achieve purpose
			2017	2019	2021	2023	2025	
Building connections and cooperation systems among domestic tea agriculture regions.	<ul style="list-style-type: none"> - Strengthening cooperation system among domestic tea agriculture regions and agricultural heritage regions 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Initiating joint cooperative project for each areas of domestic tea agriculture regions (Bosung, Jeju etc) - Forming a joint consultative group of KIAHS and establishing a network
Holding exchange programs among the traditional tea-producing regions of Korea, China, and Japan	<ul style="list-style-type: none"> - Strengthening exchange cooperation programs between public institutions of traditional tea producing regions in Korea, China and Japan 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Running an exchange agricultural training program between traditional tea producing regions in Korea, China, and Japan - Running an international exchange workshop of administrative working-level workers in traditional tea producing regions in Korea, China, and Japan
Joint publicity of agricultural heritage regions in Korea, China, and Japan	<ul style="list-style-type: none"> - Opening new market opportunities for traditional tea and responding to rapidly changing trends of tea industry 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Supporting participation of exchange programs related to domestic and international tea agriculture such as Shizuoka Japan International Tea Festival - Launching an international tea forum in conjunction with Hadong Wild Tea Culture Festival
	<ul style="list-style-type: none"> - Initiating a joint publicity of agricultural heritage regions in Korea, China, and Japan 	(1) Hadong agricultural heritage T/F, Hadong Tea Producers Council, Local communities						<ul style="list-style-type: none"> - Signing an MOU of joint publicity between traditional tea agricultural heritage regions - Producing joint publicity manuals and planning and operating joint promotional tourism products

4. Implementation system for the action plan

4.1 Conserving and utilizing the agricultural heritage: structure and operation of implementation groups

With administrative and financial supports from the Ministry of Agriculture, Food and Rural Affairs, Hadong County Office is to support the local residents' tea farming activities according to the policies of the KIAHS, and stay adaptable to changing policies and systems through regular seminars and workshops. Also, academic research and consultations are to be implemented from multiple perspectives, to seek sustainable conservation management and utilization of traditional tea agriculture. For this process, Hadong County Office shall establish a cooperative research mechanism between residents and the government or private policy research institutes. Hadong County Office is to actively support the community activities composed of tea manufacturing farms and residents, such as the Hadong Tea Producers Council. Also, it is to pursue consolidation of local capability and self-initiative, with which residents can plan and implement different measures to conserve and utilize traditional tea. The implementation plan is to prepare a step-by-step support action and mechanism that can contribute to better quality of life and higher income, in connection with the KIAHS of the central government.

Table 28. The role of implantation groups in conservation and utilization of agricultural heritage

Group	Cooperative organizations	Role
National level	- Ministry of Agriculture, Food and Rural Affairs	- Designating tea field of Hwagae region as Korea's Important Agricultural Heritage System and providing institutional support - Providing support to GIAHS registration
	- Rural Development Administration - Korea Rural Community Corporation and research Center	- Conducting policy research required for conservation management and support of heritage designation - Establishing support system consisting of experts in cooperation with Nationally Important Agricultural Heritages
	- Korea Rural Community Heritage Society - Committee for GIAHS Preparation	- Academic research on NIAHS and GIAHS - Cooperative activities with East Asia Research Association for Agricultural Heritage Systems (ERAHS) - Consultation support of experts from regions in preparation of joining NIAHS
Regional level	- Gyeongsangnam-do Provincial Government - Hadong County Office	- Implementing action plans and providing administrative support - Establishing action plans and corresponding support system
	- Hadong Tea Research Institute - Hadong Wild Tea Museum - Research Center of International Tea Culture Industry, Mokpo National Univ. - Agricultural Heritage Center, Myeongso IMC Inc.	- Multilateral research on Hwagae traditional tea agrosystem: traditional knowledge, farming culture, cultural landscape, ecology, etc. - Systematic academic research on conservation management and utilization, and on-site coaching of local farm households
Local communities	- Hadong Tea Producers Council	- Carrying out projects to conserve ecosystem and improve farming conditions of the region - Providing support to research and study for conservation management
	- Hwagae National Agricultural Cooperative Federation	- Supporting distribution, sales, and promotion of traditional tea
	- Hadong Green Tea Promotion Team - Society of Hwagae Tea People	- Providing culture and tourism commentary service on main resources and sceneries of the region, and operating programs for experiencing traditional culture

(1) Role of Hadong County Office and its residents

a) Activating an agricultural heritage task force focusing on relevant institutions of Hadong traditional tea agrosystem

Hadong County Office has launched Hadong Agricultural Heritage Task Force as an administrative support mechanism for systematic conservation management of the region, upon being designated as a Korea’s Important Agricultural Heritage and preparing for GIAHS designation. The task force will enable cooperation with relevant organizations in regards to tea production, distribution and promotion. It will provide support to different groups within the region, such as the Hadong Tea Producers Council, to self-initiate plans and activities that utilize the agricultural heritage. Also, the task force will induce participation of the Hadong Tea Research Institute, domestic and foreign specialized organizations and the academia with expertise, for a more systematic management of the agricultural heritage. Regular monitoring is to be held on the distribution status and ecological changes of the traditional tea fields in cooperation with the Hadong Tea House Fine Tea Conservation Committee.

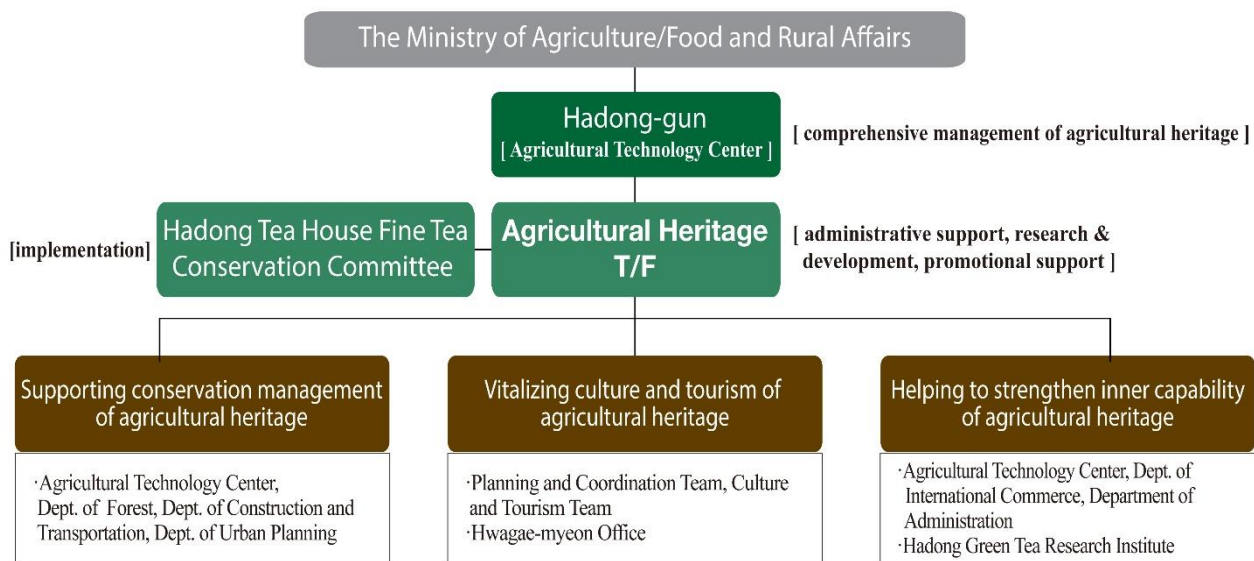


Figure 21. Structure of Hadong Agricultural Heritage Task Force

b) Strengthening the endogenous capability region-wide through restructuring the organization of the Hadong Tea Producers Council

The Hadong Tea Producers Council plans to create a new team specialized for pushing forward conservation management activities in various directions. Thus, its area of activity, previously focused on manufacturing and distribution of tea, will be further expanded. The specialized team for conservation and utilization of the agricultural heritage will invite participation from tea manufacturers, tea masters, tea culture organizations (Society of Hwagae Tea People), and Hadong Green Tea Research Institute. Through mutual cooperation, locally initiated tasks will be planned and operated such as traditional method of tea manufacturing, transmission of tea culture, conservation and restoration of agricultural environment, and developing tourism products using agricultural heritage.

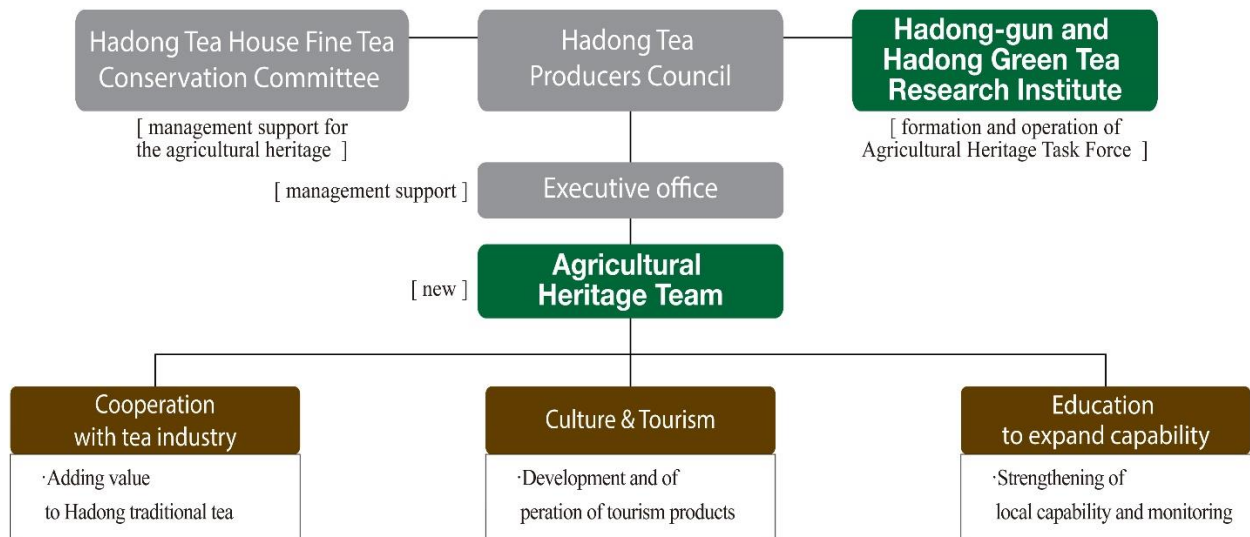


Figure 22. Structure reorganization of the Hadong Tea Producers Council

(2) The roles of the central government (Ministry of Agriculture, Food and Rural Affairs) and relevant institutions

The Ministry of Agriculture, Food and Rural Affairs have introduced Korea's Important Agricultural Heritage System (KIAHS) in April 2013, for effective management and utilization of agricultural and fishery activities and systems, as well as the consequent resources such as landscape. Having formed and evolved over a long period of time, they are systems valuable enough to be conserved, maintained and passed down from generation to generation through national designation. At this point of writing in 2017, the number of Korea's Important Agricultural Heritage System designated and being managed is seven.

Ministry of Agriculture, Food and Rural Affairs plans to continuously seek for more agricultural heritage resources in order to preserve traditional resources, enhance biodiversity, and revitalize agricultural and fishing villages. In the long run, the ministry plans to expand the area to intangible agriculture/fisheries resources as the current plan only covers the area of tangible agriculture/fisheries resources. In 2015 Hwagae Traditional Tea Agrosystem. As Hwagae traditional tea agrosystem has been designated as a national heritage, it is receiving governmental fund under the name of 'Agricultural Multifaceted Resource Utilization Project' in the amount of 1.5 billion won for three years. Hadong County Office has three-step plans to administer the stable financial funds by the government: First step is to maintain the prestige and traditionality of the national heritage by restoring destructed, damaged, or modified resources. The next step is to revamp the surroundings that could hinder the scenery or be repulsive to visitors. The last step is to affiliate the livelihood of the rural area by commercializing the traditional heritage into a tourism product, e.g. developing a differentiated product and building recreation centers.

4.2 Administrative control of conservation and utilization project of the agricultural heritage

(1) Financial aid on conservation and unitization project of agricultural heritage

Traditional hadong tea agricultural system has been designated as the sixth Korea's Important Agricultural Heritage System (KIAHS) and is pushing forward a conservation, maintenance, and unitization of agricultural resources project from 2015 to 2017 funded by the government. Financial support for total working expenses the national government grants, amounts to 1.5 billion won for three years; Hadong provincial government will account for thirty percent of the funding with its own budget. Currently Hadong County Office has established foundation plans for conservation, maintenance, and utilization of KIAHS, and is administering the detailed budget allocated for eight business areas in three fields.

The project consists of diverse plans from foundation plans for establishing an integrated master plan to systematically conserve and maintain traditional agricultural heritage to operation of a program in which residents, experts and tourists can collaborate. The Hadong Agricultural Heritage T/F is taking the leading role and operating the promotions committee including Hadong Tea Producers Council and experts for project management to discuss the directions for each different business areas and prepare a detailed outline and push forward each business consecutively.

Table 29. Budget administration plan for conservation and utilization of agricultural heritage

Title of businesses	Project Cost (KRW 1M)	Investment Plan by Year (KRW 1M)		
		2015	2016	2017
Total	1,500	117	639	744
Conservation and management of Traditional hadong tea field (3 business areas)	678	117	299	262
Understanding and Passing on the knowledge system of Traditional hadong tea farming (3 business areas)	450	–	220	230
Publicity and Tourism of Traditional hadong tea agrosystem (2 business areas)	372	–	120	252

※ It is arranged that Hadong County Office will secure more budget and expand the business area for conservation and maintenance of agricultural heritage in the future after 2017

(2) Monitoring of conservation and utilization project for agricultural heritage

a) Management and monitoring of KIAHS

Hadong County Office plans to manage the agricultural heritage areas by naming them 'Eco-museum¹⁹' in 2015, in order to promote the continuous efforts of the residents for Hwagae traditional tea agrosystem. Hadong

¹⁹ Eco-museum is a form of an active museum in which a specific region becomes a designated area where the residents in the area become the conservator and manager of the heritage as well as visitors. They are envisaging the establishment of an Ecomuseum that connects Hwagae-myeon and neighboring Akyang-myeon

County Office (Agricultural Heritage T/F) and Hadong Tea Producers Council have hosted several workshops to reach a consensus on the basic principles and standards for conservation and maintenance of agricultural heritage and make pledges on continuous management. Through these efforts, it was possible to reinforce foundational competences for the residents to take a leading role in maintaining the agricultural heritage.

Main agents for conservation/maintenance monitoring of agricultural heritage are the national government and the regional government. The Ministry of Agriculture, Food and Rural Affairs plans to conduct regular spot inspections to assess the consistency and validity of the conservation/maintenance of agricultural heritage projects, and perform general monitoring every two years to follow up on the implementation of the project by giving incentives or cancel the designation of heritage status. Hadong County Office plans to frequently check up on the actual condition of the business and the effects in conjunction with Hwagae-myeon. It also plans to conduct an assessment named “Traditional Hadong Tea Agrosystem Monitoring System Development Research” on the process of the project in accordance with the foundation plan with a professional organization.



Photo 75. Agriculture Heritage Workshop in Hwagae region

b) Measures for Exchange and Cooperation with GIAHS

Hadong County Office plans to prepare a sustainable conservation and development measure for agricultural heritage by establishing a cooperation system with tea farming regions and associated organizations in Korea, China, and Japan that produces traditional tea and utilize preceding research conducted on different regions and programs for revitalizations. Last October, Hadong County Office participated in ‘Forum on Tea and GIAHS’ in Shizuoka prefecture, Japan, and shared their



Photo 76. Forum on Tea and GIAHS

knowledge on different tea farming systems in various Asian regions as well as the characteristics and values of agricultural heritage with experts from various countries around the world.

Also, Hadong County Office is gleaning knowledge on traditional tea agriculture from domestic and foreign experts by hosting regular academic seminar and workshops on traditional tea farming with Japan and China. More specifically, they plan to gradually adjust existing conservation management system to each region’s different circumstances by conducting a joint research on tea agriculture between related countries. Hadong County Office is preparing to establish a cooperative network with foreign research institutes such as Chinese Academy of Sciences, United Nations University in Japan, Shizuoka University, Mt. Aso Ecomusée for the

aforementioned purpose. In the long run, Hadong County Office aims to share the importance of traditional tea agriculture by participate in various related programs such as GIAHS International Forum (hosted by the FAO) to utilize the plural values of traditional tea farming and expand the domestic and international network of agriculture heritage.

(3) Conservation activities of Hadong traditional tea agrosystem based on the concept of symbiosis and their future

Traditional hadong tea agriculture is an eco-friendly traditional agricultural system that produces and manages tea trees which adapted to the environment and are growing naturally in mountain regions. It is a natural agriculture activity that not only is valuable for its surrounding ecosystem but also for its sociocultural symbiotic role and functions.

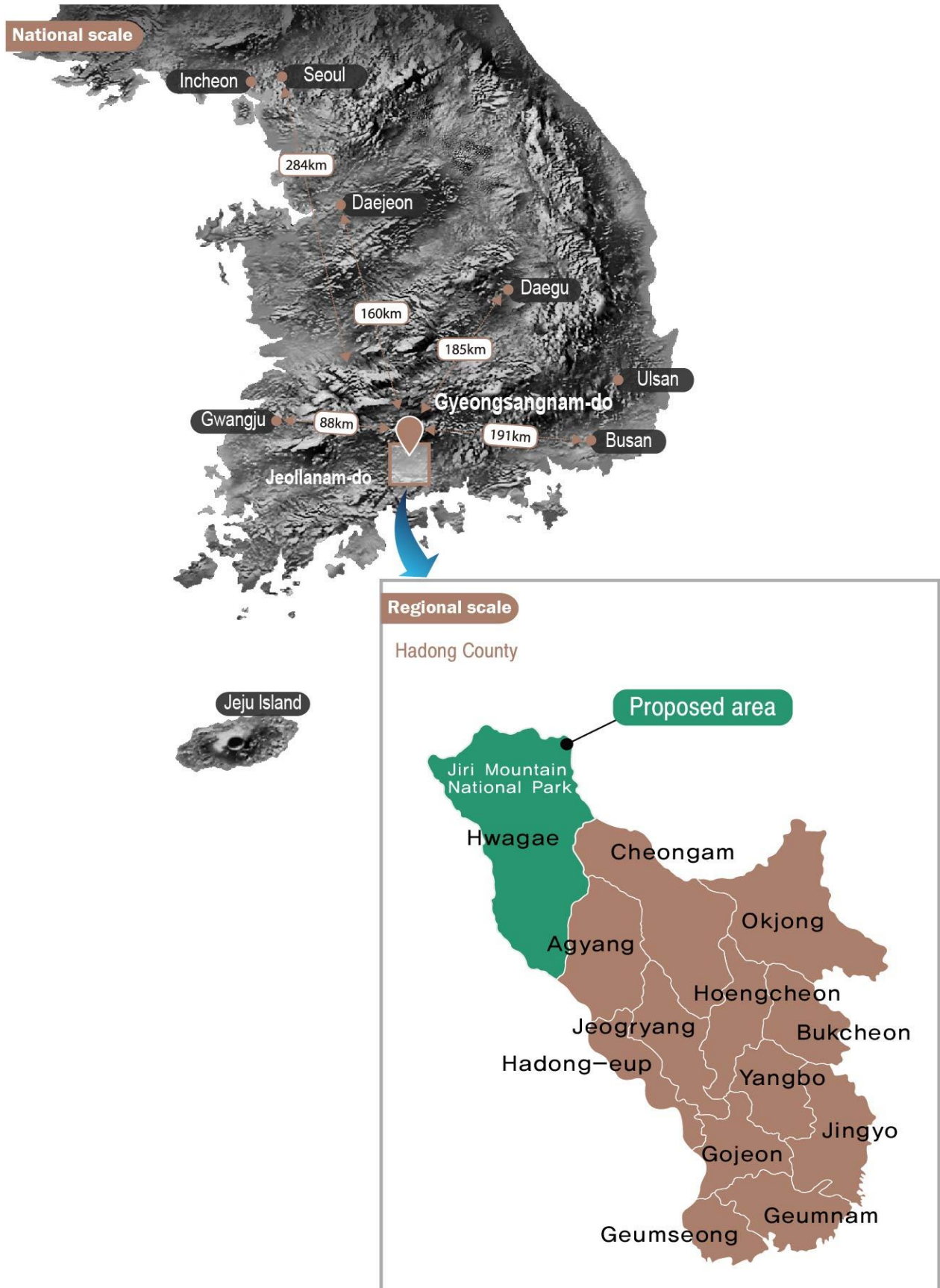
Denizens of Hadong-gun and Hwagae-myeon are preparing a foundation for the future facing the reality where tea farming areas are gradually in decline as well as domestic agriculture condition where the agriculture population is aging and tea consumption is decreasing. Hadong County Office is developing institutional conservation measures for Hwagae traditional agrosystem by establishing systems for maintenance and succession of tea production and traditional tea agriculture technology, and conservation of ecosystem and scenery of surrounding mountain areas of traditional tea field.

They are also engaging the awareness of traditional tea farming as an agriculture knowledge system in the farming families and the community establishing and practicing measures for sustainable conservation by promoting succession efforts and reinforcing competence in the area. They are also putting their efforts to outward by planning and practicing various exchange and promotional programs to disseminate plural values of traditional tea agriculture by establishing cooperative network between organizations and regions related to agriculture heritage for the understanding and sharing of domestic and foreign values of agriculture heritage.

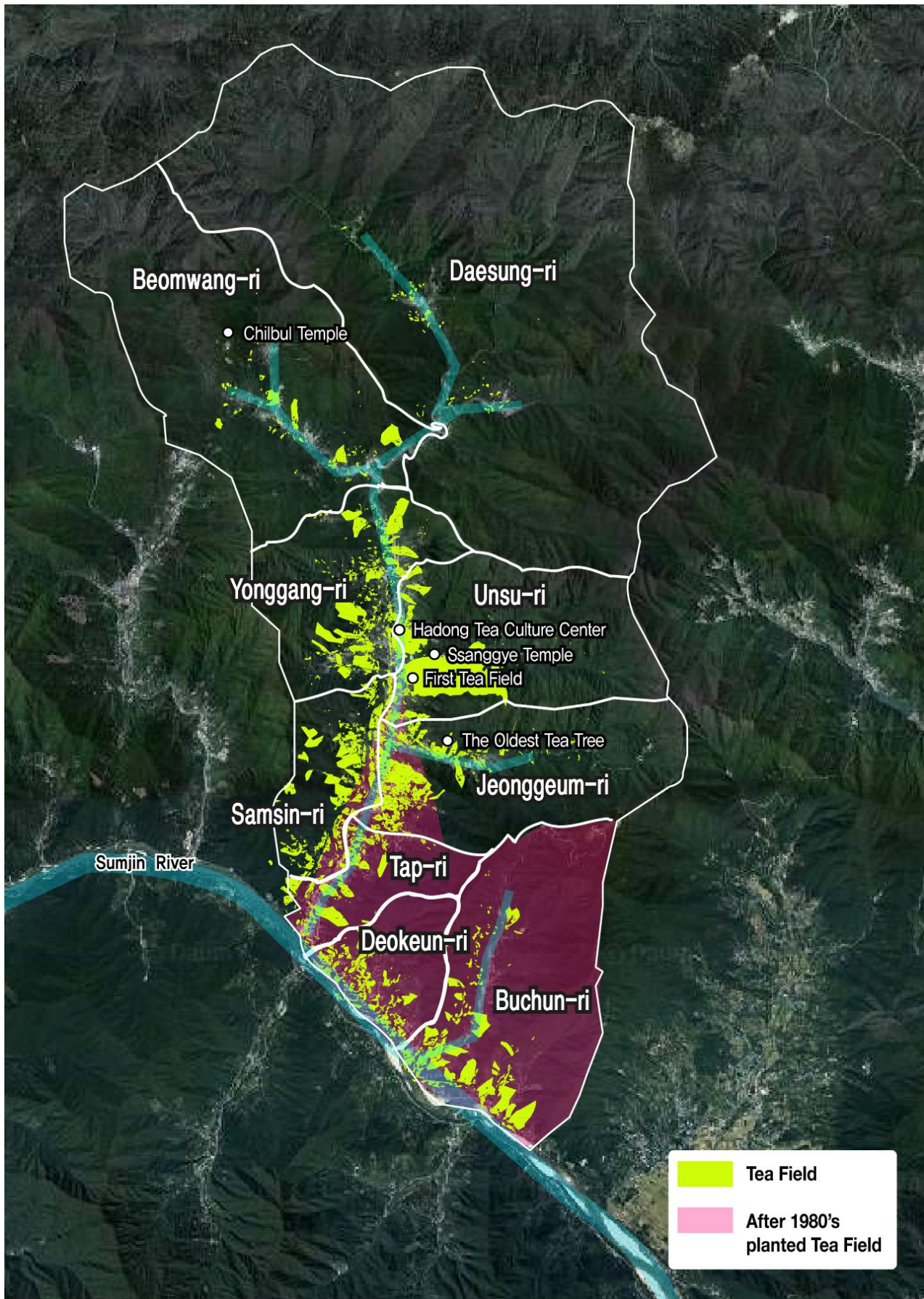
Such activities and efforts of the community is an important task that prepares the future of Traditional hadong tea agriculture as well as a responsibility to inherit the valuable heritage to the descendants. As residents of Hadong has been retaining and inheriting the tea farming for a thousand years with symbiotic understanding and acknowledging the importance of nature, the traditional tea farming will continue to pass on the value of agricultural heritage in which history and the future is coexisting.

SUGGESTED ANNEXES

1) Location of GIAHS Site at Hwagae-myeon

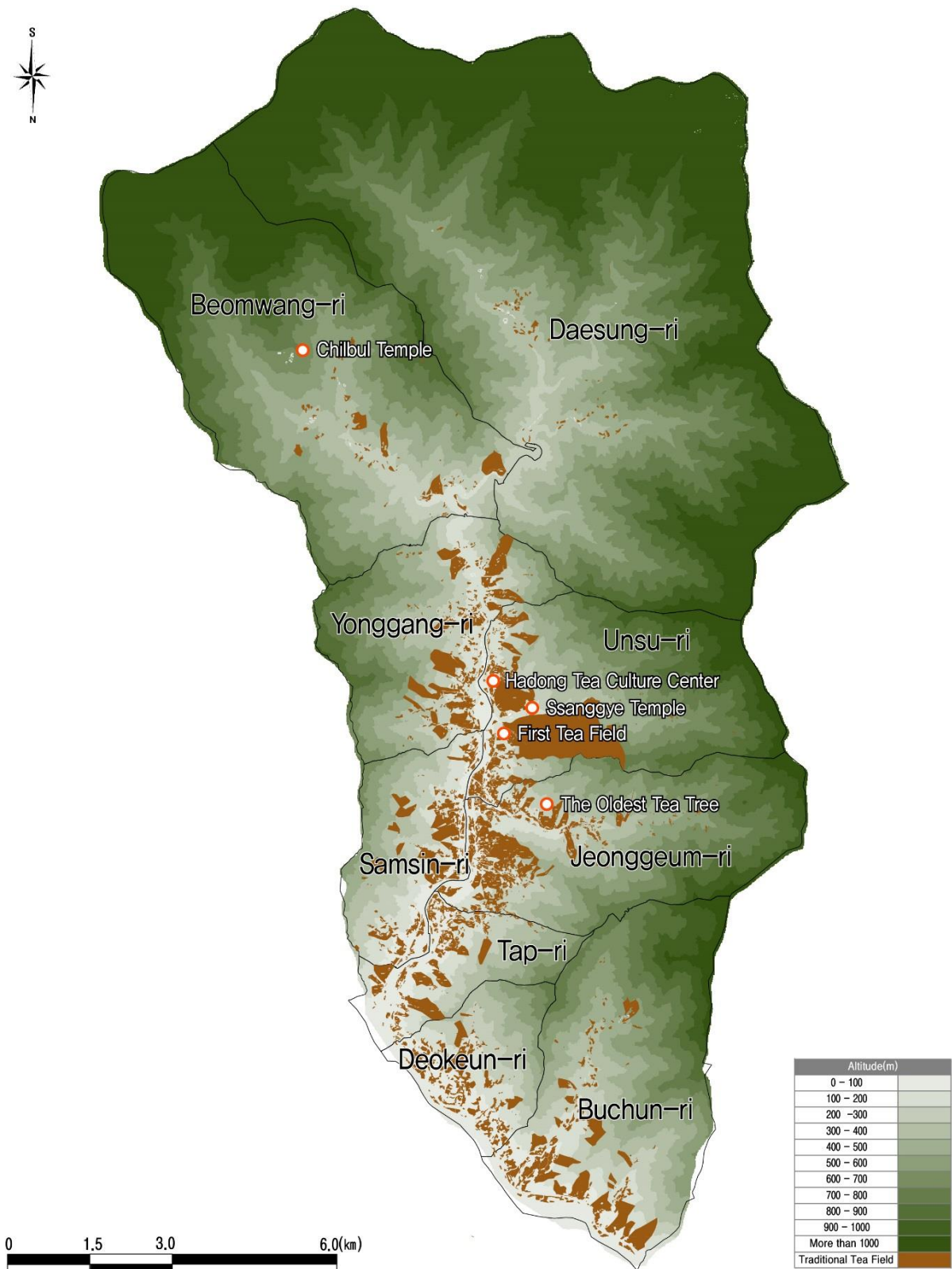


2) Tea Cultivation Status in Hwagae-myeon

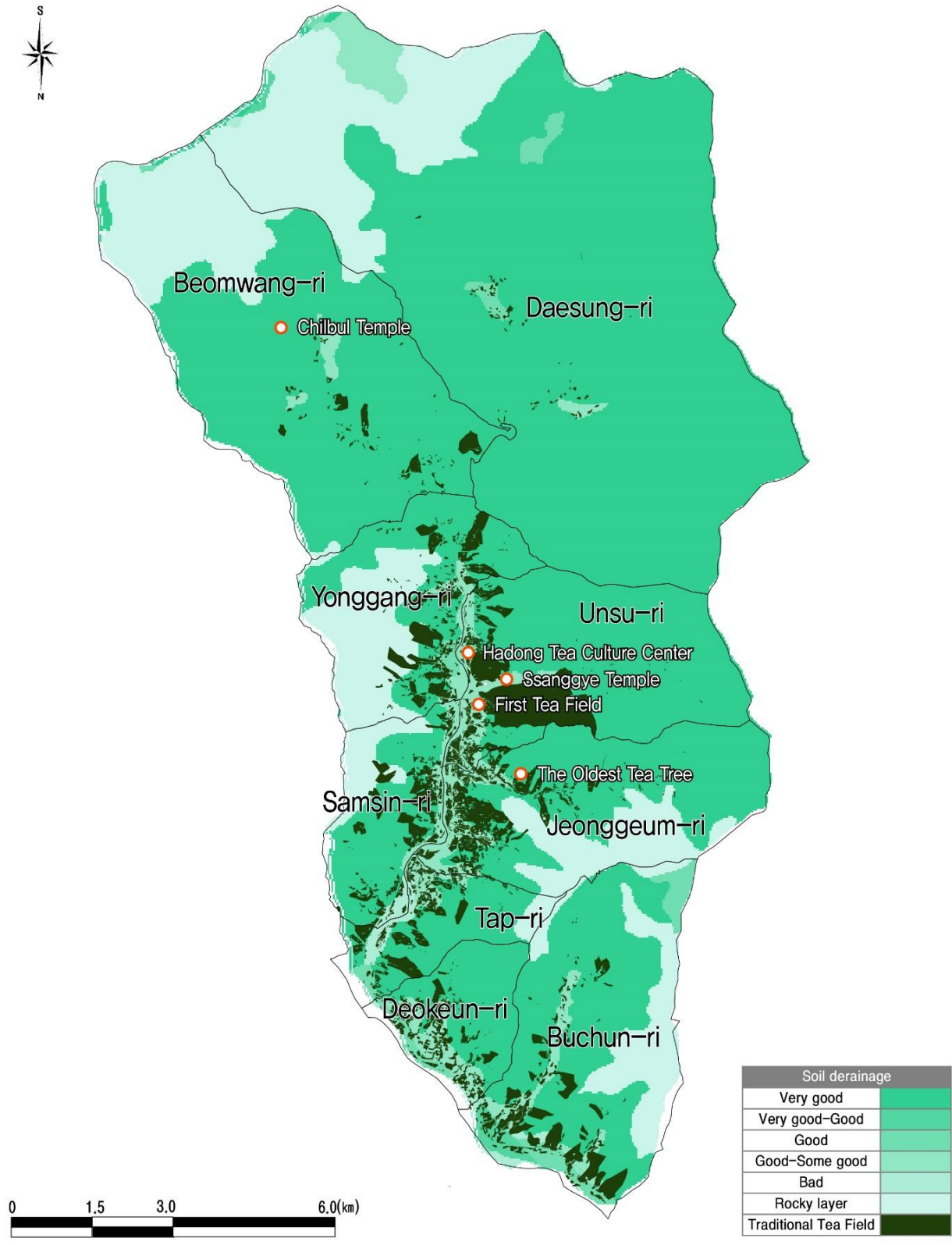


3) Disperse pattern of traditional tea fields in Hwagae-myeon

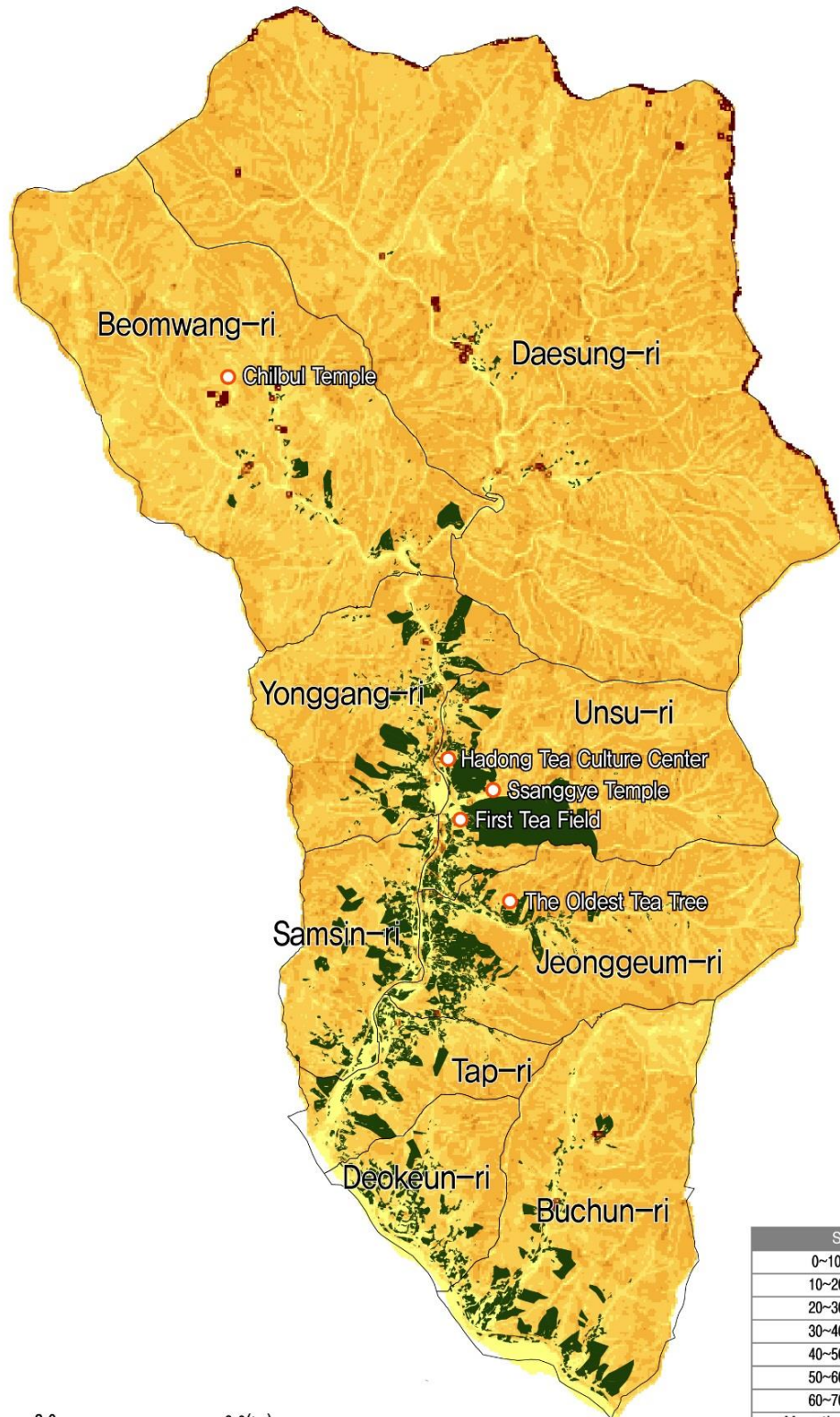
a) Altitude



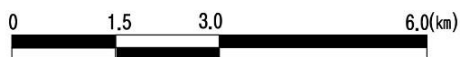
b) Soil Derainage



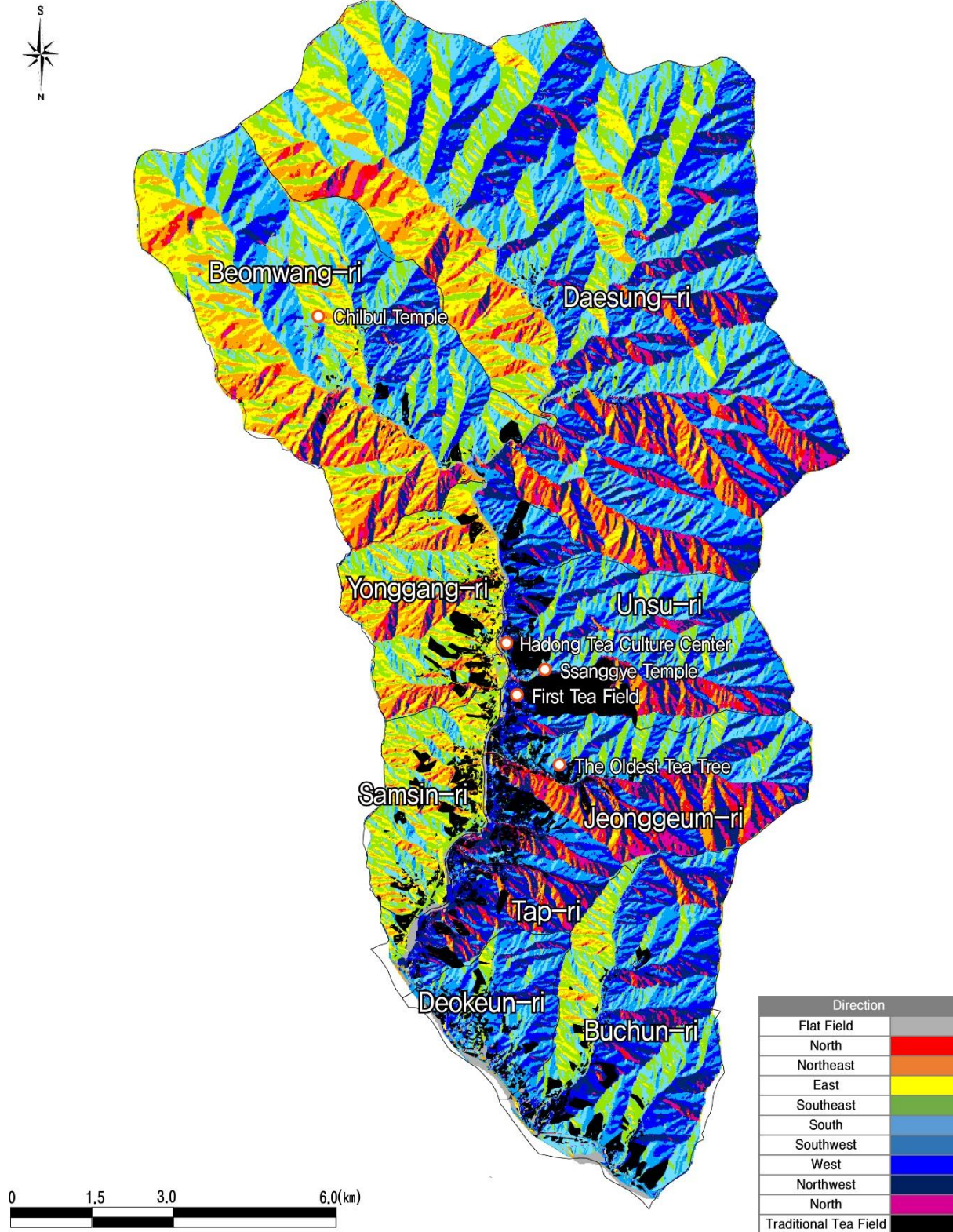
c) Slope



Slope(°)	
0~10	
10~20	
20~30	
30~40	
40~50	
50~60	
60~70	
More than 70	
Traditional Tea Field	



d) Direction



4) List of Biodiversity

a) Flora

Family	Scientific name
Betulaceae	<i>Carpinus tschonoskii</i> Maxim.
	<i>Carpinus laxiflora</i> (Siebold & Zucc.) Blume
	<i>Betula ermanii</i> Cham.
Cornaceae	<i>Cornus controversa</i> Hemsl.
Pinaceae	<i>Pinus densiflora</i> Siebold & Zucc.
	<i>Abies koreana</i> E.H.Wilson
	<i>Picea jezoensis</i> (Siebold & Zucc.) Carrière
Ericaceae	<i>Rhododendron mucronulatum</i> var. <i>ciliatum</i> Nakai
	<i>Rhododendron schlippenbachii</i> Maxim.
Oleaceae	<i>Fraxinus mandshurica</i> Rupr.
Fagaceae	<i>Quercus serrata</i> Murray
	<i>Quercus variabilis</i> Blume
Lycopodiaceae	<i>Lycopodium selago</i> L.
Ophioglossaceae	<i>Sceptridium nipponicum</i> (Makino) Holub
Hymenophyllaceae	<i>Hymenophyllum polyanthos</i> (Sw.) Sw.
Hemionitidaceae	<i>Coniogramme japonica</i> (Thunb.) Diels
	<i>Coniogramme japonica</i> var. <i>fauriei</i> (Hieron.) Tagawa
Lindsaeaceae	<i>Pleurosoriopsis makinoi</i> (Maxim. ex Makino) Fomin
Aspleniaceae	<i>Asplenium pekinense</i> Hance
	<i>Asplenium varians</i> Wall. ex Hook. & Grev.
Dryopteridaceae	<i>Cyrtomium fortunei</i> var. <i>clivicola</i> (Makino) Tagawa
	<i>Dryopteris erythrosora</i> (D.C.Eaton) Kuntze
	<i>Dryopteris hondoensis</i> Koidz.
	<i>Dryopteris medioxima</i> Koidz.
Davalliaceae	<i>Thelypteris japonica</i> var. <i>glabrata</i> Ching
	<i>Thelypteris torresiana</i> var. <i>calvata</i> (Baker) K.Iwats.
Dennstaedtiaceae	<i>Deparia</i> × <i>angustatum</i> (Nakai) Nakaike
	<i>Deparia orientalis</i> (Z.R.Wang & J.J.Chien) Nakaike
Aspleniaceae	<i>Diplazium squamigerum</i> (Mett.) Matsum.
Davalliaceae	<i>Woodsia macrochlaena</i> Mett. ex Kuhn

Dennstaedtiaceae	<i>Lepisorus onoei</i> (Franch. & Sav.) Ching
Polypodiaceae	<i>Pyrrosia petiolosa</i> (Christ) Ching
Equisetaceae	<i>Equisetum hyemale</i> L.
	<i>Equisetum arvense</i> L.
Dryopteridaceae	<i>Cyrtomium fortunei</i> J.Sm.
	<i>Dryopteris lacera</i> (Thunb.) Kuntze
Typhaceae	<i>Typha orientalis</i> C.Presl
Potamogetonaceae	<i>Potamogeton crispus</i> L.
Alismataceae	<i>Alisma canaliculatum</i> A.Br. & Bouche
Gramineae	<i>Phyllostachys nigra</i> var. <i>henonis</i> (Bean) Stapf ex Rendle
	<i>Alopecurus aequalis</i> Sobol.
	<i>Zizania latifolia</i> (Griseb.) Turcz. ex Stapf
	<i>Phragmites communis</i> Trin.
	<i>Phragmites japonica</i> Steud.
	<i>Eragrostis japonica</i> (Thunb.) Trin.
	<i>Eragrostis ferruginea</i> (Thunb.) P.Beauv.
	<i>Pseudoraphis ukishiba</i> Ohwi
	<i>Pennisetum alopecuroides</i> (L.) Spreng.
	<i>Setaria viridis</i> (L.) P.Beauv.
	<i>Setaria chondrache</i> (Steud.) Honda
	<i>Digitaria ciliaris</i> (Retz.) Koel.
	<i>Echinochloa crus-galli</i> (L.) P.Beauv.
	<i>Echinochloa crusgalli</i> var. <i>frumentacea</i> (Link) W.Wight
	<i>Beckmannia syzigachne</i> (Steud.) Fernald
	<i>Glyceria ischyrroneura</i> Steud.
	<i>Imperata cylindrica</i> var. <i>koenigii</i> (Retz.) Pilg.
	<i>Leptochloa chinensis</i> (L.) Nees
	<i>Miscanthus sacchariflorus</i> (Maxim.) Benth.
	<i>Cymbopogon tortilis</i> var. <i>goeringii</i> (Steud.) Hand.-Mazz.
	<i>Isachne globosa</i> (Thunb.) Kuntze
	<i>Arthraxon hispidus</i> (Thunb.) Makino
	<i>Leersia oryzoides</i> (L.) Sw.
<i>Panicum bisulcatum</i> Thunb.	

Cyperaceae	<i>Eleocharis dulcis</i> (Burm.f.) Trin. ex Hensch.
	<i>Eleocharis kuroguwai</i> Ohwi
	<i>Eleocharis congesta</i> D.Don
	<i>Bulbostylis densa</i> (Wall.) Hand.-Mazz.
	<i>Fimbristylis dichotoma</i> (L.) Vahl
	<i>Scirpus wichurae</i> var. <i>asiaticus</i> (Beetle) T.Koyama ex W.T.Lee
	<i>Scirpus juncooides</i> var. <i>hotarui</i> (Ohwi) Ohwi
	<i>Scirpus lacustris</i> subsp. <i>creber</i> (Fern.) T.Koyama
	<i>Carex thunbergii</i> var. <i>appendiculata</i> (Trautv. & C.A.Mey.) Ohwi
	<i>Carex dispalata</i> Boott
	<i>Carex gibba</i> Wahlenb.
	<i>Carex forficula</i> var. <i>forficula</i> Franch. & Sav.
	<i>Cyperus amuricus</i> Maxim.
	<i>Cyperus difformis</i> L.
<i>Cyperus serotinus</i> Rottb.	
<i>Cyperus exaltatus</i> var. <i>iwasakii</i> T.Koyama	
<i>Cyperus orthostachyus</i> Franch. & Sav.	
Eriocaulaceae	<i>Eriocaulon miquelianum</i> Korn.
Commelinaceae	<i>Commelina communis</i> L.
	<i>Aneilema keisak</i> (Hassk.) Hand.-Mazz.
Juncaceae	<i>Luzula capitata</i> (Miq. ex Franch. & Sav.) Kom.
	<i>Juncus effusus</i> var. <i>decipiens</i> Buchenau
Pinaceae	<i>Pinus densiflora</i> Siebold & Zucc.
	<i>Pinus rigida</i> Mill.
Taxodiaceae	<i>Cryptomeria japonica</i> (Thunb. ex L.f.) D.Don
Cupressaceae	<i>Chamaecyparis obtusa</i> (Siebold & Zucc.) Endl.
Salicaceae	<i>Populus deltoides</i> Marsh.
	<i>Populus tomentiglandulosa</i> T.B.Lee
	<i>Populus alba</i> L.
	<i>Salix koreensis</i> Andersson
	<i>Salix gracilistyla</i> Miq.
	<i>Salix graciliglans</i> Nakai
Betulaceae	<i>Carpinus turczaninowii</i> Hance

Fagaceae	<i>Castanea crenata</i> Siebold & Zucc.
	<i>Quercus variabilis</i> Blume
	<i>Quercus acutissima</i> Carruth.
Ulmaceae	<i>Zelkova serrata</i> (Thunb.) Makino
Moraceae	<i>Morus alba</i> L.
Cannabaceae	<i>Humulus japonicus</i> Siebold & Zucc.
Urticaceae	<i>Urtica thunbergiana</i> Siebold & Zucc.
	<i>Pilea hamaoi</i> Makino
	<i>Boehmeria spicata</i> (Thunb.) Thunb.
Polygonaceae	<i>Rumex acetosella</i> L.
	<i>Rumex acetosa</i> L.
	<i>Rumex crispus</i> L.
	<i>Fallopia japonica</i> (Houtt.) RonseDecr.
	<i>Persicaria perfoliata</i> (L.) H.Gross
	<i>Persicaria senticosa</i> (Meisn.) H.Gross ex Nakai
	<i>Persicaria sagittata</i> (L.) H.Gross
	<i>Persicaria muricata</i> (Meisn.) Nemoto
	<i>Persicaria thunbergii</i> (Siebold & Zucc.) H.Gross
	<i>Persicaria viscosa</i> (Buch.-Ham. ex D.Don) H.Gross ex Nakai
	<i>Persicaria hydropiper</i> (L.) Delarbre
<i>Polygonum aviculare</i> L.	
Chenopodiaceae	<i>Chenopodium album</i> var. <i>centrorubrum</i> Makino
Amaranthaceae	<i>Amaranthus mangostanus</i> L.
	<i>Achyranthes japonica</i> (Miq.) Nakai
Phytolaccaceae	<i>Phytolacca esculenta</i> VanHoutte
Portulacaceae	<i>Portulaca oleracea</i> L.
Caryophyllaceae	<i>Arenaria serpyllifolia</i> L.
	<i>Stellaria alsine</i> var. <i>undulata</i> (Thunb.) Ohwi
	<i>Stellaria aquatica</i> (L.) Scop.
	<i>Stellaria media</i> (L.) Vill.
	<i>Cerastium holosteoides</i> var. <i>hallaisanense</i> (Nakai) Mizush.
Ranunculaceae	<i>Clematis apiifolia</i> DC.
	<i>Ranunculus sceleratus</i> L.

	<i>Ranunculus tachiroei</i> Franch. & Sav.
	<i>Ranunculus chinensis</i> Bunge
	<i>Pulsatilla koreana</i> (Yabe ex Nakai) Nakai Mori
Papaveraceae	<i>Chelidonium majus</i> var. <i>asiaticum</i> (H. Hara) Ohwi
Fumariaceae	<i>Corydalis remota</i> Fisch. ex Maxim.
	<i>Corydalis incisa</i> (Thunb.) Pers.
	<i>Corydalis speciosa</i> Maxim.
Cruciferae	<i>Lepidium apetalum</i> Willd.
	<i>Capsella bursa-pastoris</i> (L.) L.W.Medicus
	<i>Cardamine flexuosa</i> With.
	<i>Cardamine lyrata</i> Bunge
	<i>Thlaspi arvense</i> L.
	<i>Rorippa indica</i> (L.) Hiern
	<i>Rorippa palustris</i> (Leyss.) Besser
	<i>Draba nemorosa</i> L.
	<i>Brassica napus</i> L.
	<i>Brassica rapa</i> var. <i>glabra</i> Regel
Crassulaceae	<i>Sedum sarmentosum</i> Bunge
Saxifragaceae	<i>Philadelphus schrenkii</i> Rupr.
Rosaceae	<i>Spiraea prunifolia</i> f. <i>simpliciflora</i> Nakai
	<i>Stephanandra incisa</i> (Thunb.) Zabel
	<i>Duchesnea indica</i> (Andr.) Focke
	<i>Potentilla anemonefolia</i> Lehm.
	<i>Potentilla fragarioides</i> var. <i>major</i> Maxim.
	<i>Rubus crataegifolius</i> Bunge
	<i>Rubus parvifolius</i> L.
	<i>Sanguisorba officinalis</i> L.
	<i>Agrimonia pilosa</i> Ledeb.
	<i>Rosa multiflora</i> Thunb.
	<i>Rosa wichuraiana</i> Crep. ex Franch. & Sav.
Oxalidaceae	<i>Oxalis corniculata</i> L.
Euphorbiaceae	<i>Euphorbia supina</i> Raf.
Leguminosae	<i>Aeschynomene indica</i> L.

	<i>Sophora flavescens</i> Aiton
	<i>Lespedeza thunbergii</i> subsp. <i>formosa</i> (Vogel) H. Ohashi
	<i>Lespedeza maximowiczii</i> C.K. Schneid.
	<i>Lespedeza cuneata</i> G. Don
	<i>Kummerowia striata</i> (Thunb.) Schindl.
	<i>Vicia angustifolia</i> var. <i>segetilis</i> (Thuill.) K. Koch.
	<i>Vicia tetrasperma</i> (L.) Schreb.
	<i>Vicia hirsuta</i> (L.) Gray
	<i>Pueraria lobata</i> (Willd.) Ohwi
	<i>Robinia pseudoacacia</i> L.
	<i>Amorpha fruticosa</i> L.
	<i>Astragalus sinicus</i> L.
	<i>Trifolium repens</i> L.
Vitaceae	<i>Parthenocissus tricuspidata</i> (Siebold & Zucc.) Planch.
Tiliaceae	<i>Triumfetta japonica</i> Makino
Violaceae	<i>Viola patrinii</i> Ging.
	<i>Viola mandshurica</i> W. Becker
	<i>Viola acuminata</i> Ledeb.
Elaeagnaceae	<i>Elaeagnus umbellata</i> Thunb.
Lythraceae	<i>Rotala mexicana</i> Ohwi
Onagraceae	<i>Oenothera biennis</i> L.
	<i>Oenothera erythrosepala</i> Borbas
Araliaceae	<i>Aralia elata</i> (Miq.) Seem.
Umbelliferae	<i>Hydrocotyle maritima</i> Honda
	<i>Oenanthe javanica</i> (Blume) DC.
Cornaceae	<i>Cornus controversa</i> Hemsl.
Ericaceae	<i>Rhododendron yedoense</i> f. <i>poukhanense</i> (H. Lévl.) M. Sugim. ex T. Yamaz.
Primulaceae	<i>Androsace filiformis</i> Retz.
	<i>Lysimachia barystachys</i> Bunge
Loganiaceae	<i>Mitrasacme alsinoides</i> R. Br.
Gentianaceae	<i>Gentiana squarrosa</i> Ledeb. var. <i>squarrosa</i>
Apocynaceae	<i>Trachelospermum asiaticum</i> (Siebold & Zucc.) Nakai
Asclepiadaceae	<i>Metaplexis japonica</i> (Thunb.) Makino

Boraginaceae	<i>Trigonotis radicans</i> var. <i>sericea</i> (Maxim.) H. Hara
	<i>Trigonotis peduncularis</i> (Trevir.) Benth. ex Hemsl.
Labiatae	<i>Ajuga decumbens</i> Thunb.
	<i>Meehania urticifolia</i> (Miq.) Makino
	<i>Prunella vulgaris</i> var. <i>lilacina</i> Nakai
	<i>Leonurus japonicus</i> Houtt.
	<i>Lamium amplexicaule</i> L.
	<i>Salvia plebeia</i> R.Br.
Solanaceae	<i>Solanum nigrum</i> L.
	<i>Datura stramonium</i> var. <i>chalybaea</i> W.D.J. Koch
Scrophulariaceae	<i>Mazus miquelii</i> Makino
	<i>Lindernia procumbens</i> (Krock.) Philcox
	<i>Veronica didyma</i> var. <i>lilacina</i> (H. Hara) T. Yamaz.
Rubiaceae	<i>Rubia akane</i> Nakai
	<i>Galium spurium</i> var. <i>echinospermon</i> (Wallr.) Hayek
Valerianaceae	<i>Valeriana fauriei</i> Briq.
Caprifoliaceae	<i>Weigela subsessilis</i> (Nakai) L.H.Bailey
	<i>Weigela florida</i> f. <i>candida</i> (Voss) Rehder
	<i>Lonicera japonica</i> Thunb.
Cucurbitaceae	<i>Trichosanthes kirilowii</i> Maxim.
Compositae	<i>Gnaphalium affine</i> D.Don
	<i>Gnaphalium japonicum</i> Thunb.
	<i>Inula britannica</i> var. <i>japonica</i> (Thunb.) Franch. & Sav.
	<i>Xanthium strumarium</i> L.
	<i>Ambrosia artemisiifolia</i> L.
	<i>Erigeron annuus</i> (L.) Pers.
	<i>Conyza canadensis</i> (L.) Cronquist
	<i>Tephrosia kirilowii</i> (Turcz. ex DC.) Holub
	<i>Senecio vulgaris</i> L.
	<i>Gymnaster koraiensis</i> (Nakai) Kitam.
	<i>Artemisia annua</i> L.
<i>Artemisia japonica</i> Thunb.	
<i>Artemisia capillaris</i> Thunb.	

	<i>Artemisia viridissima</i> (Kom.) Pamp.
	<i>Artemisia princeps</i> Pamp.
	<i>Sigesbeckia glabrescens</i> (Makino) Makino
	<i>Eclipta prostrata</i> (L.) L.
	<i>Bidens tripartita</i> L.
	<i>Cirsium japonicum</i> var. <i>maackii</i> (Maxim.) Matsum.
	<i>Hemistepta lyrata</i> Bunge
	<i>Taraxacum platycarpum</i> Dahlst.
	<i>Taraxacum officinale</i> Weber
	<i>Ixeris debilis</i> (Thunb.) A.Gray
	<i>Ixeridium dentatum</i> (Thunb.) Tzvelev
	<i>Crepidiastrum sonchifolium</i> (Maxim.) Pak & Kawano
	<i>Sonchus oleraceus</i> L.
	<i>Youngia japonica</i> (L.) DC.

b) Fauna

Group	Family	Scientific name
Mammalia	Canidae	<i>Nyctereutes procyonoides koreensis</i> Mori
	Felidae	<i>Felis bengalensis</i> Euptilura
		<i>Felis catus</i>
	Mustelidae	<i>Mustela sibirica coreana</i> Domaniewski
		<i>Martes flavigula</i> Koreana
		<i>Meles meles</i>
		<i>Lutra lutra</i>
	Bear	<i>Ursus thibetanus ussuricu</i>
	Deer	<i>Hydropotes inermis</i>
	Pig	<i>Sus scrofa</i>
	Talpidae	<i>Mogera robusta</i>
	Sciuridae	<i>Tamias sibiricus</i>
		<i>Sciurus vulgaris</i>
Rabbit	<i>Lepus coreanus</i>	

	Muridae	<i>Apodemus agrarius</i>
Algae	Paridae	<i>Parus major</i>
		<i>Parus palustris</i>
	Pycnonotidae	<i>Microscelis amaurotis</i>
	Parrotbill	<i>Paradoxornis webbianus</i>
	Brown Dipper	<i>Cinclus pallasi</i>
	Tree Sparrow	<i>Passer montanus</i>
	Waqtail	<i>Motacilla cinerea</i>
	Fringillidae	<i>Emberiza elegans</i>
	Turdidae	<i>Turdus pallius</i>
	Duck	<i>Mergus squamatus</i> Gould
	Accioitridae	<i>Buteo buteo</i>
		<i>Butastur indicus</i>
	Scolopacidae	<i>Numenius madagascariensis</i>
	Cuculidae	<i>Cuculus canorus telephonus</i> HEIN
	Apodidae	<i>Apus pacificus pacificus</i> (LATHAM)
	Cettiidae	<i>Acrocephalus arundinaceus</i>
	Alcedinidae	<i>Alcedo atthis bengalensis</i>
		<i>Halcyon pileata</i>
	Coracias	<i>Eurystomus orientalis</i>
	Picidae	<i>Picus canus</i>
Oriolidae	<i>Oriolus chinensis</i>	
Fish	Anguillidae	<i>Anguilla japonica</i>
	Engraulidae	<i>Engraulis japonica</i>
		<i>Thryssa aselae</i>
	Clupeidae	<i>Konisirus punctatus</i>
	Cyprinidae	<i>Carassius auratus</i>
		<i>Cyprinus carpio</i>
		<i>Acheilognathus chankaensis</i>
<i>Acheilognathus koreensis</i>		

	<i>Acheilognathus lanceolata</i>
	<i>Acheilognathus majusculus</i>
	<i>Acheilognathus rhombeus</i>
	<i>Acheilognathus somjinensis</i>
	<i>Rhodeus natatus</i>
	<i>Rhodeus uyekki</i>
	<i>Coreoleuciscus splendidus</i>
	<i>Hemibarbus labeo</i>
	<i>Hemibarbus longiro</i>
	<i>Microphysogobio yaluensis</i>
	<i>Pseudogobio esocinus</i>
	<i>Pungtungia herzi</i>
	<i>Sarcocheilichthys nigripinnis morii</i>
	<i>Sarcocheilichthys variegatus wakiyae</i>
	<i>Squalidus chankaensis tsuchiga</i>
	<i>Squalidus gracilis majimae</i>
	<i>Tribolodon hakonensis</i>
	<i>Opsariichthys uncirostris amurensis</i>
	<i>Zacco platypus</i>
	<i>Zacco koreanus</i>
	<i>Hemiculter eigenmanni</i>
Loach	<i>Cobitis tetralineata</i>
	<i>Iksookimia longicorpa</i>
	<i>Misgrunus mizolepis</i>
Siluridae	<i>Silurus asotus</i>
	<i>Silurus microdorsalis</i>
Bagridae	<i>Leiocassis ussuriensis</i>
	<i>Pseudobagrus koreanus</i>
Amblycipitidae	<i>Liobagrus mediadiposalis</i>
Osmeridae	<i>Hypomesus nipponensis</i>

	<i>Plecoglossus altivelis</i>
Salmonidae	<i>Onchorhynchus keta</i>
Mugilidae	<i>Chelon haematocheilus</i>
	<i>Mugil cephalus</i>
Hemiramphidae	<i>Hyporhamphus intermedius</i>
Syngnathidae	<i>Syngnathus schlegeli</i>
Platycephalidae	<i>Platycephalus indicus</i>
Mandarin fish	<i>Coreoperca herzi</i>
	<i>Siniperca scherzeri</i>
Moronidae	<i>Lateolabrax maculatus</i>
Sillaginidae	<i>Sillago sihama</i>
Carangidae	<i>Trachurus japonicus</i>
Slipmouths	<i>Leiognathus nuchalis</i>
Sparidae	<i>Acanthopagrus schlegeli</i>
Odontobutidae	<i>Odontobutis interrupta</i>
	<i>Odontobutis platycephala</i>
Gobiidae	<i>Rhinogobius brunneus</i>
Gobiidae	<i>Tridentiger brevispinis</i>
	<i>Acanthogobius flavimanus</i>
	<i>Acanthogobius lactipes</i>
	<i>Acentrogobius pflaumi</i>
	<i>Favonigobius gymnauchen</i>
	<i>Gymnogobius mororanus</i>
	<i>Synechogobius hasta</i>
<i>Tridentiger bifasciatus</i>	
Barracudas	<i>Sphyraena pinguis</i>
Pleuronectidae	<i>Kareius bicoloratus</i>
	<i>Eopsetta grigorijewi</i>
Amphibian	<i>Hynobius leechii</i>
	<i>Bombina orientalis</i>

		<i>Bufo gargarizans</i>
		<i>Hyla japonica</i>
		<i>Rana coreana</i>
		<i>Rana dybowskii</i>
		<i>Rana rugosa</i>
		<i>Rana catesbeiana</i>
Reptilia		<i>Chinemys reevesii</i>
		<i>Scincella vandenburghi</i>
		<i>Takydromus amurensis</i>
Reptilia		<i>Elaphe dione</i>
		<i>Enhydria rufodorsata</i>
		<i>Rhaphidophis tigrinus tigrinus</i>
		<i>Dinodon rufozonatus rufozonatus</i>
		<i>Gloydus ussuriensis</i>
		<i>Gloydus saxatilis</i>
		<i>Gloydus brevicaudus</i>
Class Hexapoda (Insect)	Libellulidae	<i>Orthetrum albistylum speciosum (Uhler)</i>
		<i>Pantala flavescens (Fabricius)</i>
		<i>Sympetrum depressiusculum (Selys)</i>
		<i>Sympetrum eroticum eroticum (Selys)</i>
		<i>Sympetrum infuscatum (Selys)</i>
	Mantidae	<i>Tenodera angustipennis Saussure</i>
	Acrididae	<i>Acrida cinerea cinerea(Thunberg)</i>
		<i>Gastrimargus marmoratus(Thunberg)</i>
		<i>Oedaleus infernalis Sassure</i>
		<i>Oxya japonica japonica(Thunberg)</i>
		<i>Patanga japonica(Bolivar)</i>
		<i>Shirakiacris shirakii(Bolivar)</i>
	Gryllotalpidae	<i>Gryllotalpa orientalis(Burmeister)</i>
	Gryllidae	<i>Oecanthus indicusSaussure</i>

Acrididae	<i>Atractomorpha lata</i> (Motschulsky)
Tettigonidae	<i>Phaneroptera falcata</i> (Poda)
	<i>Ruspolia lineosa</i> (Walker)
Tridactylidae	<i>Xya japonica</i> (deHaan)
Berytidae	<i>Metatropis tesongsanicus</i>
Corixidae	<i>Hesperocorixa kolthoffi</i> (Lundblad)
	<i>Micronecta (Basilionecta) sedula</i> Horváth
Coreidae	<i>Cletus trigonus</i> (Thunberg)
	<i>Cletus schmidti</i> Kiritschenko
	<i>Homoeocerus dilatatus</i> Horváth
	<i>Hygia opaca</i> (Uhler)
	<i>Riptortus clavatus</i> (Thunberg)
Gerridae	<i>Aquarius paludum</i> (Fabricius)
Largidae	<i>Physopeltac incticoliis</i> Stal
Lygaeidae	<i>Geocoris varius</i> (Uhler)
	<i>Lethaeus assamensis</i> (Distant)
	<i>Nysius plebejus</i> Distant
	<i>Pachygrontha antennata</i> (Uhler)
	<i>Panaorus japonicus</i> (Stal)
	<i>Paromius exiguus</i> (Distant)
Malcidae	<i>Chauliops fallax</i> Scott
Miridae	<i>Adelphocoris suturalis</i> (Jakovlev)
	<i>Adelphocoris triannulatus</i> (Stal)
	<i>Orthocephalus funestus</i> Jakovlev
	<i>Stenodema rubrinervis</i> Horváth
	<i>Stenodema (Brachystira)calcarata</i> (Fallén)
Nabidae	<i>Nabis(Nabis) stenoferus</i> Hsiao
Pentatomidae	<i>Aelia fieberi</i> Scott
	<i>Anthemina varicornis</i> (Jakovlev)
	<i>Carbula putoni</i> (Jakovlev)

		<i>Dolycoris baccarum</i> (Linné)
		<i>Eurydema gebleri</i> Kolenati
		<i>Eysarcoris aeneus</i> (Scopoli)
		<i>Eysarcoris ventralis</i> (Westwood)
		<i>Halyomorpha halys</i> (Stal)
		<i>Homalogonia obtusa</i> (Walker)
		<i>Plautiastali</i> Scott
	Plataspidae	<i>Megacopta punctatissima</i> (Montandon)
	Reduviidae	<i>Oncocephalus assimilis</i> Reuter
		<i>Oncocephalus breviscutum</i> Reuter
	Rhopalidae	<i>Rhopalus maculatus</i> (Fieber)
		<i>Rhopalus sapporensis</i> (Matsumura)
		<i>Stictopleurus crassicornis</i> (Linné)
	Scutelleridae	<i>Eurygaster testudinaria</i> (Geoffroy)
	Aphrophoridae	<i>Aphrophora maritima</i> Matsumura
		<i>Eoscartopsis assimilis</i> (Uhler)
	Cicadellidae	<i>Austroasca</i> (<i>Austroasca</i>) <i>vittata</i> (Lethierry)
		<i>Bothrogonia japonica</i> Ishihara
		<i>Cicadella viridis</i> (Linné)
		<i>Doratulina grandis</i> (Matsumura)
		<i>Handianus limbifer</i> (Matsumura)
		<i>Ledra auditura</i> Walker
		<i>Nephotettix cincticeps</i> (Uhler)
	Cicadidae	<i>Meimuna opalifera</i> (Walker)
	Delphacidae	<i>Epeurysa nawaii</i> Matsumura
		<i>Laodelphax striatellus</i> (Fallén)
	Dictyopharidae	<i>Orthopagus lunulifer</i> Uhler
	Tropiduchidae	<i>Ossoides lineatus</i> Bierman
	Cerambycidae	<i>Agapanthia pilicornis</i> (Fabricius)
		<i>Oberea inclusa</i> Pascoe

Cerambycidae	<i>Phytoecia rufiventris</i> Gautier
	<i>Spondylis buprestoides</i> (Linné)
Cetoniinae	<i>Gametis jucunda</i> Faldermann
Cicindelidae	<i>Cicindela</i> (<i>Eugrapha</i>) <i>elisae koreanica</i> Mandl
Chrysomelidae	<i>Cassida</i> (<i>Cassidulella</i>) <i>nobilis</i> Linnaeus
	<i>Cassida</i> (<i>Cassida</i>) <i>piperata</i> Hope
	<i>Chrysolina aurichalcea</i> (Mannerheim)
	<i>Gallerucida</i> (<i>Gallerucida</i>) <i>bifasciata</i> Motschulsky
	<i>Lema</i> (<i>Lema</i>) <i>concinnipennis</i> Baly
	<i>Physosmaragdina nigrifrons</i> (Hope)
Coccinellidae	<i>Calvia</i> (<i>Aniscocalvia</i>) <i>quatuordecimguttata</i> (Linné)
	<i>Coccinella septempunctata</i> Linné
	<i>Harmonia axyridis</i> (Pallas)
	<i>Propylea japonica</i> (Thunberg)
Curculionidae	<i>Episomus turritus</i> (Gyllenhal)
	<i>Lissorhoptrus oryzophilus</i> Kuschel
	<i>Lixus subtilis</i> Boheman
Harpalidae	<i>Chlaenius</i> (<i>Chinelaus</i>) <i>pallipes</i> Gebler
	<i>Dolichus halensis</i> (Schaller)
Rutelidae	<i>Adoretus tenuimaculatus</i> Waterhouse
	<i>Bifurcanomala aulax</i> (Wiedemann)
	<i>Mimela splendens</i> Gyllenhal
	<i>Popillia mutans</i> Newmann
Apidae	<i>Apis mellifera</i> Linné
Vespidae	<i>Polistes jadvigae jadvigae</i> Dalla Torre
	<i>Vespa crabro flavofasciata</i> Cameron
Pieridae	<i>Artogeia rapae</i> (Linné)
Tortricinae	<i>Archips breviplicanus</i> (Walsingham)
	<i>Archips oporanus</i> (Linnaeus)
	<i>Cydia kurokoi</i> (Amsel)

	Limacodidae	<i>Microleon longipalpis</i> Butler
	Thyrididae	<i>Rhodoneura pallida</i> (Butler)
		<i>Striglina cancellata</i> (Christoph)
	Crambinae	<i>Agrotera nemoralis</i> (Scopoli)
		<i>Ancylolomia japonica</i> Zeller
		<i>Calamotro phapaludella purella</i> (Leech)
		<i>Catagela subdatella</i> Inoue
		<i>Chilo luteelus</i> (Motschulsky)
		<i>Conogethes punctiferalis</i> (Guenée)
	Crambinae	<i>Cnaphalocrocis medinalis</i> (Guenée)
		<i>Elophila</i> (<i>Cyrtogramme</i>) <i>turbata</i> (Butler)
		<i>Eurrhyarodes accessalis</i> (Walker)
		<i>Haritalodes derogata</i> (Fabricius)
		<i>Herpetogramma luctuosalis</i> (Guenée)
		<i>Hymenia recurvalis</i> (Fabricius)
		<i>Maruca vitrata</i> (Fabricius)
		<i>Neopediasia mixtalis</i> (Walker)
		<i>Nomophila noctuella</i> (DenisetSchifferrmüller)
		<i>Palpita nigropunctalis</i> (Bremer)
		<i>Pleuroptya balteata</i> (Fabricius)
		<i>Pycnarmon lactiferalis</i> (Walker)
	<i>Pyrausta fuliginata</i> Yamanaka	
	Pyralidae	<i>Aphomia zelleri</i> (Joannis)
		<i>Endotricha flavofascialis</i> Bremer
		<i>Etiella zinckenella</i> Treitschke
		<i>Nyctegre tistriangulella</i> Ragonot
		<i>Oncocera semirubella</i> (Scopoli)
		<i>Orthopygia nannodes</i> (Butler)
	Geometridae	<i>Abraxas miranda</i> Butler
		<i>Abraxas niponibia</i> Wehrli

		<i>Ascotis imparata</i> (Walker)
		<i>Chiasmia hebesata</i> (Walker)
		<i>Fascellina chromataria</i> Walker
		<i>Hemithea tritonaria</i> (Walker)
		<i>Heterolocha aristonaria</i> (Walker)
		<i>Idaea muricata</i> (Hufnagel)
		<i>Jankowskia fuscaria</i> (Leech)
		<i>Macaria shanghaiaria</i> (Walker)
		<i>Phthonandria emaria</i> (Bremer)
		<i>Timandra comptaria</i> Walker
	Sphingidae	<i>Acherontia styx medusa</i> Moore
		<i>Theretra japonica</i> (Boisduval)
	Lymantriidae	<i>Euproctis pulverea</i> (Leech)
		<i>Euproctis similis</i> (Fuessly)
	Arctiidae	<i>Spilarctia alba</i> (BremeretGrey)
		<i>Spilarctia seriatopunctata</i> Motschulsky
		<i>Spilosoma lubricipeda</i> (Linnaeus)
		<i>Stigmatophora flava</i> (BremeretGrey)
	Noctuinae	<i>Abrostola ussuriensis</i> Dufay
		<i>Acontia bicolora</i> Leech
	Noctuinae	<i>Acronicta(Viminia) rumicis</i> (Linnaeus)
		<i>Aedia leucomelas</i> (Linnaeus)
		<i>Anterastria atrata</i> (Butler)
		<i>Apamea aquila</i> Donzel
		<i>Athetis albisignata</i> (Oberthür)
		<i>Axylia putris</i> (Linnaeus)
		<i>Callopietria repleta</i> Walker
		<i>Calyptra hokkaida</i> (Wileman)
		<i>Catocala patala</i> Felder & Rogenhofer
		<i>Chrysodeixis(Chrysodeixis) eriosoma</i> (Doubleday)

	<i>Corsa petrina</i> (Butler)
	<i>Cryphia mitsuhashi</i> (Marumo)
	<i>Ctenoplusia agnata</i> (Staudinger)
	<i>Ctenoplusia albostrata</i> (Bremer & Grey)
	<i>Cucullia fraterna</i> Butler
	<i>Earias pudicana</i> Staudinger
	<i>Hadjina chinensis</i> (Wallengren)
	<i>Helicoverpa armigera</i> (Hübner)
	<i>Helicoverpa assulta</i> (Guenée)
	<i>Herminia tarsicrinalis</i> (Knoch)
	<i>Hydrillodes lentalis</i> Guenée
	<i>Hypena kengkalis</i> Bremer
	<i>Hypersynoides submarginata</i> (Walker)
	<i>Maliattha signifera</i> (Walker)
	<i>Mecodina subviolacea</i> (Butler)
	<i>Micreremites pyraloides</i> Sugi
	<i>Microxyla confusa</i> (Wileman)
	<i>Mimachrostia fasciata</i> Sugi
	<i>Mythimna</i> (<i>Morphopoliana</i>) <i>stolida</i> (Leech)
	<i>Nipponyx segregata</i> (Butler)
	<i>Oligonyx vulnerata</i> (Butler)
	<i>Olivenebula oberthueri</i> (Staudinger)
	<i>Oraesia excavata</i> (Butler)
	<i>Paragona inchoata</i> (Wileman)
	<i>Parallelia dulcis</i> (Butler)
	<i>Plusia festucae</i> (Linnaeus)
	<i>Plusiodonta casta</i> (Butler)
	<i>Sesamia inferens</i> (Walker)
	<i>Sophta subrosea</i> (Butler)
	<i>Spodoptera depravata</i> (Butler)
	<i>Spodoptera litura</i> (Fabricius)

5) Pictures Related to Traditional Hadong Tea Agrosystem



▲ Harvesting tea in the traditional tea field on a slope





▲ Harvesting tea in Korea's first tea field



▲ The first tea field in Ssanggye Temple



▲ Traditional tea field on a slope





▲ Traditional tea field on the slope in winter



▲ Flatland Tea Fields in Agricultural Heritage Area



▲ The Oldest Tea Tree



▲ Roasting process of the Traditional hadong tea



▲ Bearing process of the traditional tea



▲ Processing method of *Jaeksal*



▲ *Pungdaje*, the rite of praying for the abundant tea harvest



▲ *Dalye*, traditional tea ceremony



▲ Harvesting experience of the traditional tea farming



▲ Moonlight tea gathering in Seomjin River