

IPSI Case Study Summary Sheet

Basic Information

Title of case study	Taking care of the elderly as the core of rural transformation in Shangde community, Taitung, Taiwan.		
Submitting IPSI member organization(s)	SWCB (Soil and Water Conservation Bureau)		
Other contributing organization(s)	SWAN (Society for Wildlife and Nature) International		
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Format of case study	Manuscript	Language	English
Keywords	SEPLS, Shangde community, Taitung, herbs, Amis		
Date of submission	December 2018		
Summary	<p>Shangde was once a prosperous village in Taitung, east Taiwan, with over 2,000 residents growing high-priced lemongrass and manufacturing products of citronella oil. However, following a stunning drop in the market and price of natural citronella oil due to the rise of synthesized chemicals since 1967, many residents gave up local agriculture and left in the 1980s, which resulted in a sharp decline of population to less than 200. Other socio-economic consequences in Shangde included decreasing income from farming, young people left to find jobs in the cities, further abandonment of agricultural land, and an aging community. However, starting in 2011, a group of young people decided to revitalizing this rural community by taking care the elderly and involving them into eco-friendly farming and production of high-priced crops, e.g. aromatic herbs, based on their physical strength. Such practice not only help improve the health condition of the elderly and increase their income, but also bring social cohesiveness in the community. In addition, by maintaining the farmland for agricultural use, promoting eco-friendly farming, producing high-priced crops, raising the value of the product, the community has attracted more youngsters to join force in reviving its SEPLS.</p>		

Geographical Information

Country		Chinese Taipei		Location(s)		Donghe township, Taitung County, located in southeast part of Taiwan island			
Longitude/latitude or Google Maps link				Google Earth: 22 57'51.00"N, 121 14'30.48"E, Elevation: 40~850m					
Category		Agriculture			Region		East Asia		
Ecosystem(s)									
Forest	X	Grassland	X	Agricultural	X	In-land water	X	Coastal	
Dryland		Mountain	X	Urban/peri-urban		Other			

Socioeconomic and environmental characteristics of the area

Shangde is a rural community of Donghe Township in Taitung County of eastern Taiwan and is located about 30 km north of Taitung City, the largest city in Taitung County (Figure 1). The topography of Shangde community, with a total area of 3,176 hectares, is high and steep on the east and west sides and lower from southwest to the northeast (Figure 1). The landscape includes a mosaic of mountains, mixed forests, grassland, farmlands, wetlands, streams and irrigation ditches. Mean annual temperature of Shangde is 24.61°C, and mean monthly temperature ranges from 28.9°C in July to 19.7°C in January. Mean annual precipitation is 1819.95 mm and the rainy season is from April to November. There are five settlements in this area, scattered on both sides of the south tributary of Mawuku Stream, and connected by County Road E23. The ethnic groups in Shangde include indigenous Amis (75%), 25% Han and other ethnic groups.

Shangde community is also located in the Donghe Water Source Protection Zone proclaimed by the Ministry of Economics. According to the government regulation, no large-scale, industrialized development is allowed in this area. Due to this regulation and the remoteness and inconvenient transportation of Shangde, the development here is rather slow. Relatively little disturbed forest and wetlands provide habitats for at least 57 species of bird, 53 species of amphibian and reptile, 13 species of mammal, 33 species of fish, shrimp, and crab, and an environment which is ideal for organic agriculture industry.



Figure 1. Location of Shangde community in Taiwan (left) and the landscape managed by the community (right).

Description of human-nature interactions in the area

The indigenous Amis have lived here for thousands of years and the Han people began to move into this area hundreds of years ago, though the Amis have always been the majority.

In the 1960s, Taiwan became the world's top producer of citronella oil, an essential oil obtained from the leaves and stems of different species of lemongrass, *Cymbopogon* spp. Annual production of citronella oil in Taiwan reached its peak, 3,600 metric tons, in 1964. The extracted citronella oil brought remarkable wealth to Taiwan during this period. The lemongrasses were harvested three times per year. About 9 barrels (7-10 kg per barrel) of citronella oil could be produced per hectare of slope land. Although the price fluctuated, average price for each barrel was NTD1,800, which equals a 900-day earning of a labor at the time. The price of citronella grass was so good that it drove many Hakka people moving from Miaoli of west Taiwan to Shangde in order to reclaim free slope land for planting lemongrass. There were 5 refineries for extracting essential oil and the population in Shangde was once over 2,000.

This golden age, however, did not last long. The market for natural citronella oil was soon eroded by synthesized chemicals in 1967. The stunning drop in citronella oil price had significant socio-economic consequences. The Hakka immigrants switched to grow citrus and plum before they finally moved back to their home town when western Taiwan began to industrialize during the 1980s. As income from farming dropped, young people left to find job opportunities in the cities, which caused a further decline of population to a bit more than a hundred. Shangde became the smallest community in Taitung County with half of the residents over the age of 65, which also resulted in further abandonment of farmlands, with only 20% of arable land remained to be cultivated.

At present, there are about 300 residents in Shangde, and the livelihood of most of them depends on primary agricultural production. Fruit trees such as plum, litchi, citrus, pomelos, etc., are planted on slope land, with a total area of 130 hectares. Other crops include bamboo for bamboo shoots, oil-seed camellia (*Camellia oleifera*) for oil production. In the plain area, there are 26 hectares of rice paddies, and 6 hectares for herb production. Conventional farming practice is applied to most rice and fruit trees and eco-friendly farming practice is applied to bamboo shoots and herbal plants. The area for herb production has been increasing.

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Status	Completed	Period	July 2017- October 2018
Rationale			
<p>To change the situation of Shangde as a community of declining and aging population with abandonment and degradation of farmland, a group of young people formed the Shangde Community Development Association and collaborated with public sectors and industries in an attempt to revitalize their community, take care the elderly, earn mutual trust among community members, and attract more young people to return to the community by promoting eco-friendly or organic farming, producing high-qualified crops and high value products, and providing more job opportunities.</p>			
Objectives			
<p>Transforming Shangde to a Provence in Taiwan, which will be famous for its rich and diverse aromatic herbal plants and will benefit the community by</p> <ol style="list-style-type: none"> 1) taking care of elderly who are given various types of work according to their physical condition, 2) passing on cultural heritage related to water resource management which is important for farming, 3) enhance mutual trust and cohesiveness between the Amis and Han people, between the old and young generation; 4) providing job opportunities and better income based on growing and producing higher value crops, 5) restoring SEPLS with eco-friendly farming 6) improving biodiversity after restoration of wetlands and eco-friendly farming. 			
Activities and/or practices employed			
<p>To revitalize Shangde community, a group of youngsters led by Mr. Jen-Ding Chen, the president of the Shangde Community Development Association (SCDA), initiated a series of activities 7 years ago and set a vision to transform Shangde to a Provence in Taiwan. The rationale behind the vision and activities was that the majority of residents who are Amis above 65 years old have abandoned farming their land due to their physical condition and low price of rice they cultivated. To revitalize farmland owned by these people, there is the need for them to trust and be willing to work with young people who may be interested in farming but do not have land tenure or may not have the skill of farming, and for them to grow something of higher value than rice. Enabling and encouraging the elderly to grow aromatic herbal plants which can be processed into products of higher values was thought to be a good start to reach these objectives. So the activities initiated by the SCDA included:</p> <ol style="list-style-type: none"> 1. to serve and care the Amis elderly and build mutual trust among Amis and Han people <p>By visiting the Amis elderly one by one so as to know their needs, holding traditional dancing and singing parties which the elderly, particularly the Ina (means 'mother' in Amis), enjoyed participating, providing free meals at times for elderly to dine together, etc., the SCDA, particularly Mr. Jen-Ding Chen, took more and better care of the elderly than their children who mostly work in the cities. In addition, Mr. Chen hired the elderly to do various types of work for the herbal industry he promoted, based on their physical condition. Many Amis elderlies are strong enough to work in the field and those who are not can work indoor. In addition to getting good wages, the elderly reaffirmed their own value through working. Three years after, with a built mutual trust, the Amis elderly were even willing to lend their abandoned farmland and collaborate with the SCDA to grow herbs. "The Amis here never retires." By giving them suitable work, the elderly not only prove to be valuable in providing knowledge and experience of farming but also an important source of workforce. Their health condition also improved after they have jobs and more income.</p> <ol style="list-style-type: none"> 2. to utilize government resources to resolve land tenure issues <p>According to current agricultural policy in Taiwan, farmers must grow crops in at least one crop season and leave their land fallow before they can receive subsidies. Such policy is to encourage owners of fallow land to bring it back under cultivation or to rent it to someone who will. The fallow subsidy is basically provided to the owner of the land, not to the tenant. However, if there is a contract between the landlord and the tenant, then</p>			

the landlord and the tenant can share the subsidy. To access fallow farmland owned by the Amis for growing herbs, Mr. Jen-Ding Chen acted as the tenant but gave up his share of fallow subsidy so that the landlord received full amount of fallow subsidy. In this way, land owners had higher income and Chen did not have to pay more rent and the land gets to be cultivated by eco-friendly method, sometimes by young people joining the community, instead of being abandoned.

3. to revive cultural heritage related to water resource management and collaborate in maintenance of irrigation ditch

Shangde is located in the Water Source Protection Zone and its water is fairly clean for drinking and irrigation. With the assistance of the Soil and Water Conservation Bureau (SWCB), the irrigation ditch which is more than a hundred years and partially damaged was fixed to keep continuous water supply for the farmland of the community, particularly the rice field. However, the maintenance of the irrigation ditch requires a joint working force consisting of maintenance workers hired by the community and owners of the farmland who share the cost of maintenance according to the size of their farm land. Nowadays two maintenance workers patrol along the ditch every morning, remove silt, pick up leaves in the filter, check if there is any leaking, and weeding. Patrols are rotated every six months.

Every few months there will be an overhaul when each family sent out a person and work with others to clean up the silt, mud in the ditch and fix any leakage or collapsed part of the ditch. A party is held after the overhaul. All workers eat, drink and chat together and this is considered as a big event of the community. The maintenance of irrigation ditch thus is not only a job but a shared experience among people who share the water resource. The work-sharing in reality promotes well-being and a greater social cohesion. This living heritage, valued and intentionally kept by the community, is now rarely seen in other places of Taiwan.



Figure 2. Herbal plants and herbal products from Shangde.

4. to promote eco-friendly or organic farming, herbal planting and herbal industry

The SCDA offers courses to help community members switch to eco-friendly or organic farming on various types of crops, particularly herbal plants. Sludge removed from the ditch in each overhaul is used in the

nursery of herbal plants. Agricultural waste is used to produce compost. The recycling reduces costs of eco-friendly farming and benefits environment. The herbal plants have few pests and some are even pest repellent. The herbal plants are also sensitive to nitrogen input therefore require less or no fertilizer. The SCDA is also contracting farmers in other communities to grow herbal plants through eco-friendly or organic farming practice.

The SCDA, particularly Mr. Jen-Ding Chen also renovated old refineries into modern lab and processing factory to research and develop various types of added-value herbal products. The growing, producing, marketing and eco-tourism in experiencing herbal plants and products, etc., offer many new job opportunities which attract young people to join in the community.

5. Environmental education and eco-tourism:

From 2017 to 2018, the SCDA began to use Shangde Elementary School, a school which had been closed for more than a decade because of continuous emigration, as a site for environmental education. Various herbal plants were planted and exhibited here and methods of growing herbal plants were demonstrated. With the assistance of the SWCB Taitung Branch, a business model for herbal industry has been developed in hope to attract more youth to stay and work in Shangde.



Figure 3. Environmental education and eco-tour are provided by SCDA to visitors, including many youths.

The production landscape managed by Shangde community is rich in biodiversity. Shangde community is now planning to collaborate with neighboring communities and develop more eco-tourism programs in this area. Through training of interpreters, collaborating with Donghe Farm managed by the Veteran Affairs Council, a daytime bird watching and nighttime stream observation program may be developed for the sustainable use of natural resources. The profit generated from eco-tourism will be used for conservation of local biodiversity.



Figure 4. A view of production landscape managed by Shangde community.

Results

With the hard work of the SCDA, noticeable changes in the Shangde community include:

1. Reducing abandoned land and increasing land cultivated by eco-friendly methods

After improving mutual trust among community members, the SCDA was able to convince the elderly to release more than 3.8 hectares of land for cultivation together with young people. Although the conventional farming still dominates, area of eco-friendly farming, mainly for growing herbal plants has increased from zero to 7 hectares. In addition, due to his early working experience, Mr. Jen-Ding Chen was able to access reliable, commercially oriented production information needed for marketing herb production and find buyers who are interested in acquiring local herbal plants. He and his co-workers, therefore, established the Olive Leaf Coop Farm and contracted more farmers to growing herbal plants by eco-friendly or organic methods. The total area of eco-friendly farmland producing herbal plants in Shangde and its neighboring villages has reached 42 hectares. Thinking such way of farming and improvement in environment quality may attract more visitors, the Coop Farm is now planning mini-vacation itineraries for visitors to explore and to develop a deeper, more rewarding appreciation of Shangde.

2. Increasing income from agriculture

On average, farmers applying conventional farming practice on growing rice may make NTD 120,000 ~130,000 per hectare of rice while causing soil and land degradation at the same time. In contrast, farmers applying eco-friendly or organic farming practice to grow herbal plants can make NTD 400,000 ~ 450,000 per hectare while maintaining the soil and land quality. This income is about three times of that of rice farming, in addition to the environmental and health benefit of eco-friendly or organic herbal planting.

3. Creating more job opportunities

The process of herbal plants into added-value products creates many job opportunities for local people, especially the elderly. The distilling equipment for herb processing is now in place. Contract farming agreement is settled and the cash income becomes stable. Two kinds of herbal tea bags and several

cosmetic products have been developed and increased the added value of herbs. These products have been well-received by consumers.

In order to increase the cash flow, the Coop Farm began to promote eco-tourism for tourists to experience the century old trees, irrigation ditch, and the unique landscape of Shangde. In 2017, the SCDS and the Coop Farm successfully accessed the right to manage campus of the closed Shangde Elementary School for use of caring the elderly, the children, the "agricultural garden" and environmental education so that the young people with the intention of staying in Shangde could have agricultural training and learning opportunity.



Figure 5. A local woman plants white ginger lily, *Hedychium coronarium*, a native herb from Taiwan.

4. Increasing population and young people

The total population of the community has increased from 298 in 2005 to 314 in 2015. The Shangde community held a successful working holiday in 2017 to recruit helper from outside. The attitude of local residents toward these youngster has improved greatly and a further collaboration among them toward sustainability is expected.

5. Recovering biodiversity

The fixing of the irrigation ditch not only improve the stability of water supply but also help the return and persistence of freshwater biodiversity. Species diversity in this production landscape has increased.

Other changes include improvement of the health condition of the elderly, cohesiveness of community, and increasing price of land in the community. In addition, more and more community members have recognized that both economy and society are supported by the environment and that biodiversity is part of their life. By mainstreaming biodiversity, the SEPLS in Shangde is being rebuilt.

Lessons learned

The success of Shangde in revitalizing community and its SEPLS was the result of an excellent integration of the cultural heritage, people, and history of the community, as well as innovation. The key person who nicely putting these factors together is Mr. Jen-Ding Chen who was born and brought up in Shangde. He is familiar with the culture, history, people and environment of this community. Before returning to Shangde, he had accumulated ample knowledge and experience on herbal plants and products as an employee of a cosmetic company. It is commendable that he envisions that Shangde has the potential of becoming a Provence in Taiwan, because Shangde had a history of growing a great variety of herbal plants in vast areas. The local environment is ideal for growing herbal plants and for visitors to enjoy and experience eco-friendly products in

such an environment. Mr. Chen also has the background and knowledge of growing, researching and developing various kinds of herbal products and designing relevant tourism programs which can lead to many potential job opportunities for young people, a key factor to revitalize an aging community.

However, before everything can be realized, it requires consensus and collaboration of the community members, especially of the elderly who have lived in the community for their entire life and can be difficult to change their way of thinking. It takes sincerity, caring, and patience of the community leaders to find out the needs of the community members, help solve the problems they faced, promote cohesiveness through activities that involve and benefit all members, and enhance consensus through participatory discussion and decision-making.

Collaboration and partnership also play important roles in facilitating the revitalization of the community and its SEPLS. Shangde is successful in integrating resources from government agencies, such as using the subsidy to encourage land owners into releasing their land for cultivation, seeking assistance from the SWCB in fixing the irrigation ditch, collaborating with business sectors in co-producing and marketing added value herbal products. In addition, Shangde has also approached many experts from various research institutions and universities to get information and knowledge it wants, learn skills it needs, get the herbal plant varieties it tries to grow, etc.

Finally, Shangde continues to innovate and experimenting, e.g. trying new species or variety of herbal plants to grow, new methods of cultivation, new formula or products to produce, new business models to try, new partnership and ways of collaboration. All of the above mentioned characteristics and approaches will help increase the resilience of the community to deal with the ever-changing future.

Key messages

1. To restore or rebuild a SEPLS, it is important to care for the people as it is to care for Nature.
2. The elderly in the community is a treasure. They can provide knowledge, experience, as well as workforce when given suitable works to do. This kind of mindset should be nurtured, particularly in an aging community or society.
3. A culture of mutual trust and respect needs to be nurtured before cohesiveness of community can be built, and benefit sharing among community members is important for social cohesiveness to last.
4. Land tenure is an important issue in terms of revitalizing a production landscape. A better understanding of the legal system and government subsidy rules may help tackle land tenure related problems.
5. Integrating smallholders into value chain through business model is worth trying.

Relationship to other IPSI activities | NA

Funding

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References cited

Contributions to Global Agendas

The table below shows based on the self-evaluation by author(s). ● and ■ indicates the “direct” or “indirect” contributions to the following global agendas respectively to which the work described in this case study contributes to.

CBD Aichi Biodiversity Targets (<https://www.cbd.int/sp/targets/>)

Strategic Goal A				Strategic Goal B					
●			●	●	■	●	●		
Strategic Goal C			Strategic Goal D			Strategic Goal E			
■	●	●	●	●	■	■	●	●	●

UN Sustainable Development Goals (SDGs) (<https://sustainabledevelopment.un.org/sdgs>)

●	●	●	■	■	●		●	■
■	●	●	■	●	●	■	■	