

III. ACTION PLAN FOR THE PROPOSED GIAHS SITE

Nishi-Awa Steep Slope Land Agriculture System GIAHS Conservation Plan (Action Plan)



Period: Fiscal 2017-2021 (5 years)
Tokushima-Mt. Tsurugi GIAHS Promotion Association

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1. Introduction

This Action Plan summarizes the ongoing and planned projects in the Nishi-Awa Steep Slope Land Agriculture System, the subject of the Tokushima-Mt. Tsurugi GIAHS Promotion Association's application for recognition as a Globally Important Agricultural Heritage System (GIAHS) by the United Nations Food and Agriculture Organization (FAO).

The region's agricultural system is unique in that it cultivates steep slopes of up to 40 degrees without having any level planes such as terraced fields. Cultivation of grains, traditional vegetables and other crops have been handed down over the years while minimizing the soil transport through tilling with unique agricultural tools and techniques and by covering the fields with grass from the grasslands. Furthermore, the grasslands and farmland that dot the forests nurture diverse flora and fauna. The region also has traditional agricultural events and a unique food culture, which is primarily centered on grains and preserved food to survive the challenging conditions, that have been carefully passed down from generation to generation.

This agricultural system has created a unique rural landscape in Japan by adapting to the challenging environment of this mountainous region. This agricultural system has been used continuously on its steep slopes, which have attracted many tourists from within Japan and abroad in recent years.

This Action Plan describes specific measures we will take to pass on the region's agriculture system to the next generation, overcome issues and make a contribution both domestically and internationally.

2. The significance of preserving the agriculture system

The Nishi-Awa steep slope land agriculture system, passed on primarily by subsistence farmers that mainly cultivate a wide variety of crops in small quantities, possesses a number of values that cannot guarantee a livelihood based solely on farming revenue in a capitalist economy.

Value 1: The grain culture that has been handed down

Slash-and-burn grain production was once the main source of food in Japan. Then, when rice cultivation was introduced from continental Asia, rice farming communities rapidly developed, mainly in the plains. Now, as the staple foods of the world can be simply categorized into rice, wheat and corn, Nishi-Awa's assorted grains-focused farming culture continues to be handed down in a region that is far from the plains.

A unique, heterogeneous lifestyle not dependent on rice has been preserved by establishing a sustainable system of agriculture that can be maintained by people living in this mountainous area - once called 'a different world like Shangri-La' by an Eastern culture scholar.

Value 2: Small-scale farming that is highly resilient

Despite the abundance that rice cultivation brought to Japan, we are reminded of the vulnerability of mono-cropping from the large number of deaths due to bad weather-based famines or poor harvests in the past.

The traditional farming techniques and diverse subsistence farming of this system, on the other hand, have been handed down without serious famines. Relying on subsistence farming of diverse crops in small quantities, rather than large-scale automated or mass-labor professional farming, it exhibits a high level of resilience despite the challenging conditions of the steep slopes.

Value 3: The community bonds that support small-scale farming

Each inhabitant of the villages in this region is part of a larger community. In order to live on this land, they run small farms, participate in the region's collaborative work and cultural events, and form communities by protecting and sharing the farmland, houses, ancestral graves and mountains.

There are many types of farmers - those who farm as their main work, those who farm as a side job, those who are elderly and those who have retired from another career - but farming to all of them is a way of life and not merely a profession.

Surplus crops are shared with neighbors as well as relatives and friends living far away. This giving and exchanging of produce deepens community and familial bonds, which in turn keep each small-scale operation viable through mutual support.

Nishi-Awa possesses values that cannot be expressed solely through a capitalist economy, and these values have been protected while Japan developed into an advanced country. These values are now drawing people to the area from the cities, including those who previously left coming back to farming

due to the bond with their relatives, and this is creating successors.

However, as is true for most areas of Japan, the environment surrounding farming is becoming increasingly severe in the face of the declining population and aging of producers.

Our aim in obtaining GIAHS recognition is to give pride and hope to the region's farmers by conveying the value of small-scale farming in contrast to what is offered by a capitalist economy, and to ensure the continuation of this agriculture system.

3. Threats and challenges to preserving and passing on the agriculture system

(1) Food and livelihood security

There are many small farmers in the area and they grow as many as 140 different kinds of crops in semi-subsistent agriculture. Communities that trade crops, seeds and labor as well as help with agricultural festivals, have greatly contributed to the food and livelihood security of each farmer in the area.

At the same time, depopulation and aging is reducing the vitality of farmers and communities, the number of laborers and agricultural income are stagnating, and the difficulty of upscaling and automating steep slope farming in particular is necessitating the protection of farmland and creation of frameworks to secure stable income. To this end, there is a need to train many new farmers and establish a style of farming that makes full use of the abilities of everyone, from the core management body to women and the elderly.

This system, with its historic slope-farming methods, farm and food culture and lifestyle that is in harmony with the beautiful nature, has value on a global scale. This value must be used to guarantee livelihoods through initiatives such as partnering with local traders, manufacturers, tourism organizations and others, to boost commercial viability, publicity and promoting farm-stays. Furthermore, damage to crops by wildlife is worsening, accelerating effective countermeasures.

These challenges must be overcome, and productivity and profitability improved to expand the population.

(2) Agro-biodiversity

Grasslands in and around the villages not only yield the *kaya* (plants used for thatching, mainly Chinese silvergrass (*Miscanthus sinensis*)) that is indispensable for maintaining the steep slope land agriculture system, they also play an important role as a place to raise numerous plants and animals. However, some grasslands are becoming insufficiently managed due to a lack of successors.

In addition, because rice cropping is difficult in this region, various grains have long been cultivated as an important staple-food crop, and a diversity of species native to the region exist. However, the number of producers has fallen in recent years due to low productivity and profitability.

Biodiversity needs to be conserved through regular monitoring, and the region's valuable unique species need to be preserved and passed on through production promotion, primarily by grain producer associations.

(3) Local and traditional knowledge systems

Techniques such as preventing soil erosion by covering the sloping fields with *kaya* and using unique agricultural tools to cultivate on slopes, enables sustainable agriculture even in the challenging conditions of steep slope land.

This knowledge system contains a wisdom that has allowed generations to live in abundance by flexibly adapting to the natural environment, weather-related disasters and social changes. About 10,000 farmers across the region use this system, but as they are aging and do not have successors, there are issues to ensure that these techniques are passed on to the next generation.

Furthermore, in order to pass on the region's unique agricultural tools, it is important to sustain the stable operations of blacksmiths in the region. Even though there were several blacksmiths in the region in the 1980s, there is now only one.

The succession of the system must be ensured through multi-stakeholder participation in conserving farmland, heightened resident awareness and efforts to secure blacksmith successors.

(4) Cultures, value systems, and social organizations

The cultures, value systems, and social organizations that support this system are diverse. The unique agricultural tools suitable for slope land, various agricultural festivals and events being succeeded in each area, the *o-do* (temple hall) culture (serving as places to communicate, exchange information and give mutual aid) and preserved foods of unique traditional crops and the traditional food culture have all been handed down for generations.

However, population decline has weakened the *o-do* (temple hall) culture and community functions

that promote mutual aid, threatening community activities such as agricultural festivals and events, succession of traditional food culture as well as road and water infrastructure maintenance.

In addition, while many local foods are eaten daily, along with changes in diet, in recent years some have become available only at special events.

Therefore, efforts need to be promoted to support residents re-recognize regional issues on their own, work to overcome them, pass on the region's unique food culture.

(5) Landscape and seascape features

On the region's sloped land, seemingly disadvantageous, the houses, fields and grasslands are actually arranged functionally and communally, forming multiple cropping villages. This creates an original mosaic landscape of beautiful villages in the middle of rich forests.

However, as farmers get older and fewer, the number of vacant houses and abandoned farmlands increase, making it difficult to maintain these traditional multiple cropping villages. Furthermore, fencing made of old signboards to protect against damage from wildlife is a detractor from the village landscape.

Therefore we need to make use of vacant houses, promote village preservation and landscape beautification with the participation of residents and various other stakeholders to maintain a landscape that is harmonious with nature.

4. Action Plan summary

[Direction] In addition to efforts by stakeholders such as residents and public organizations, expanding participation to supporters outside of the region will lead to the preservation and passing on of the steep slow agriculture system by creating a virtuous cycle from livelihood security to landscape conservation.

	Farmer/resident/regional activities	Joint/public management/support	Use of external support
Food and livelihood security	<p>Worker measures</p> <ul style="list-style-type: none"> - New and returning farmers, women farmers, post-retirement farmers, etc. - Tutoring system for one-on-one support by experienced instructors 	<ul style="list-style-type: none"> - Farming consultation and technology research groups - Subsidies for new young farmers - Teaching at agri-tech schools - Labor contracting through farm service 	<p>Introduction of PES (Payment for Ecosystem Services)</p> <p>Creation of "Conservation Bank"</p> <p>We will recruit sponsors and use it to conserve farmland and support labor</p> <p>Funding</p> <ul style="list-style-type: none"> • Donations from companies • "Benefit-your-locality" taxes • Crowdfunding • Portion of branded product sales <p>Human resources</p> <ul style="list-style-type: none"> • Official supporters for farming/mountain/fishing villages (volunteers from companies, etc.) • University fieldwork <p>Portion of sales</p> <p>Creation of GIAHS-branded product certification system</p> <ul style="list-style-type: none"> • We will assess and approve • Logo creation • Differentiation by labeling
	<p>Village business representatives</p> <p>Farmland conservation measures</p> <ul style="list-style-type: none"> - Public-private partnerships for agricultural productivity regeneration and farmland conservation customized to each village Measure 1: Effective use of direct payment system to mountainous regions, e.g.: <ul style="list-style-type: none"> • Expand area of grain cultivation • Eliminate abandoned farmland Measure 2: Increase application of joint/contracted work, e.g.: <ul style="list-style-type: none"> • Collaboration with grain producer associations • Farm service to contract labor Measure 3: Use of Conservation Bank (PES), e.g.: <ul style="list-style-type: none"> • Farmland preservation • Production of crops to give in return for donations 	<ul style="list-style-type: none"> - Appointment of farmland conservation advisors - Assess approx. 200 villages - Proposals customized to each village - Support requests to Conservation Bank 	
	<p>Cross-industry collaboration</p> <ul style="list-style-type: none"> - School lunch ingredient provision - Farmer restaurant/hotel ingredient provision - Expansion of direct farm-to-market sales 	<ul style="list-style-type: none"> - Collective production of special products - Online sales, joint sales in major cities, overseas export support - New food-farming-tourism business, new products and new sales channels 	
	<p>Farm-stay promotion and food culture sharing</p> <ul style="list-style-type: none"> - Increased income from half-farming, half-tourism model <ul style="list-style-type: none"> • Increase farm-stay facilities and users • Enhance menu and hands-on programs 	<ul style="list-style-type: none"> - Seminars and workshops for new farm-stay businesses - Establishment of farm-stay network to increase convenience and service quality - Use of food culture as tourism source (gastro-tourism) 	
	<p>Prevention of damage by wildlife</p> <ul style="list-style-type: none"> - Reduce damage by wildlife <ul style="list-style-type: none"> • Share capture techniques • Train hunters • Introduce monkey dogs 	<ul style="list-style-type: none"> - More wildlife damage prevention instructors - More use of game meat processing facilities - More certified game meat restaurants offering wild boar and deer 	
<p>Agro-biodiversity</p> <ul style="list-style-type: none"> - Seed conservation through sub-culturing 	<ul style="list-style-type: none"> - Regular surveys of flora and fauna - Conservation of precious grains and other native species (genetic resources) by public institution - Continued cultivation of grain species by grain producer associations 		
<p>Local and traditional knowledge systems</p> <ul style="list-style-type: none"> - Protection of unique farm tools - Train blacksmith successors 	<ul style="list-style-type: none"> - Events and symposiums to deepen resident understanding 		
<p>Cultures, value systems, and social organizations</p> <ul style="list-style-type: none"> - Seminars for residents to pass on food culture 	<ul style="list-style-type: none"> - More official village supporters to maintain regional communities - Passing on of farm and food culture in schools 		
<p>Landscape</p> <ul style="list-style-type: none"> - Renovation of vacant houses/facilities - More <i>kominka</i> accommodations and users 	<ul style="list-style-type: none"> - Matching of vacant house/facility owners and potential users - Support to ensure <i>kaya</i> supply for thatched roofs 		

5. Addressing the issues

(1) Food and livelihood security

a) Worker measures

In addition to the conventional semi-subsistent farming, it is important to guarantee livelihoods by developing economic frameworks that are sustainable in the long term in a capitalist economy.

To this end we will secure diverse human resources - not only full-time farmers but women, post-retirement returning farmers and those who can farm while working in other industries.

We will aim to maintain agriculture across the region by combining a variety of human resources inside and outside the region.

Efforts to increase new/returning farmers

We will organize farming consultation and technology research groups for new farmers and those returning to the region to farm.

Subsidies and facility development support will be provided to young new farmers.

Agri-tech schools run by Tokushima Prefecture will support education on farming techniques and management. After beginning farming, prefectural instructors will offer one-on-one instruction for a more hands-on education.



Supporting new farmers

Efforts to bring people back to the region to farm

As an initiative to encourage people to value their origins and return to their hometowns to farm, the local government has formed the Yamabiko Furusato (hometown) Group to send hometown newsletters and produce to people coming from these places twice a year.

Using this network, we will develop and spread a model of agricultural management unique to Nishi-Awa that combines farming and interaction, creating a sustainable livable environment for new and post-retirement farmers.

Efforts to empower women

The women farmers group in the JA Mima women's society is leading an initiative to deliver fresh, delicious farm produce and processed products to their children's families in the city by selling crops cultivated in the mountains at five stores, including department stores, in the Kansai region.

By continuing to select products and support sales plans and cultivation management, JA and the local government will increase the ways in which women farmers are empowered.

Efforts Using Contractors and Collaborators

The Mima Agricultural Cooperative Association and Awa-Miyoshi Agricultural Cooperative Association are operating and enhancing a farm service that contracts farm work to externally supplement the labor. The prefecture-led Tokushima Furusato Supporters Project also recruits collaborators from sponsor companies to help with the work.



Collaboration with sponsor companies

Major Targets and implementers

Tokushima Prefecture, municipalities, agricultural cooperative associations and private organizations will work together to support farming. There were five new farmers in 2016 but we plan to use the budgets of the prefecture, municipalities and agricultural cooperative associations to secure 30 by 2021.

Lead implementer	Tokushima Prefecture
Implementers	Municipalities, agricultural cooperative associations, farm service associations (Agri-Support Mima, Agri-Support Miyoshi)
Cooperators	Yamabiko Furusato Group, Dream Production Association Co., Ltd., Yamashiro Tea Agricultural Association Inc., JA Mima Women's Society Women Farmers Group

b) Farmland conservation measures

A 2014 survey showed that there are 989 hectares of slope farmland. As the region’s population shrinks and farmers age, one important challenge is how to conserve farmland.

Challenges and solutions vary among the approximately 200 villages, but some cannot devise customized conservation measures on their own.

Furthermore, while some villages are active, others are not, so the efforts of the former need to be spread to the latter to step up the activities of all 200 villages.

Promotion of measures by farmland conservation advisors

We will appoint farmland conservation advisors who can oversee the entire region and advise individual villages. They will go into each village and assess the state of farmland and workers, then propose conservation measures to the village’s business representatives. During implementation, they will serve as intermediaries between residents and the government and Promotion Association to implement customized production regeneration and farmland conservation measures as a public-private partnership.

Examples of measures

- In villages with active residents, we will use the Ministry of Agriculture, Forestry and Fisheries’ program for direct payments to mountainous regions to recommend grains, tea and other crops suited to each village and expand cultivated area while restoring abandoned farmland to fields and grasslands.
- In villages where the residents alone cannot maintain the farmland, we will introduce joint production methods like that of the Iya Grain Producer Association and increase contracting to the Yamashiro Tea Agricultural Association Inc., farm service groups and other organizations.
- We will use the funds and human resources of a “Conservation Bank” incorporating PES (p. 10) for farmland conservation activities and to produce crops to be given in return for donations.

Major targets and implementers

Using the budgets of the prefecture, municipalities and agricultural cooperative associations, we will conserve slope farmland by appointing 20 farmland conservation advisors and proposing and implementing measures customized to each village by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, agricultural cooperative associations, farm service associations (Agri-Support Mima, Agri-Support Miyoshi)
Cooperators	Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association, NPO Sojin-Kai, Nisisyou Yoisyo no Kai, Yamashiro Tea Agricultural Association Inc., volunteer groups

c) Cross-industry collaboration and business creation

The many crops cultivated in this region are giving rise to diverse cross-industry collaboration (what Japan calls sixth-sector industrialization, the integration of primary, secondary and tertiary industry processes).

We will promote similar collaboration between agriculture, forestry, food companies, traders and manufacturers to brand farm produce, develop new value-added products and open new sales channels.

School lunch, hotel and farm-to-market provision

We will pass on the region’s food culture and activate a circular economy by providing foods for school lunches and to farmer’s restaurants and hotels. There are also 30 farm-to-market locations in the region whose sales are rising every year, so we still support these to achieve even greater sales.

These efforts to deliver produce directly to consumers will bring farming closer to them, improving farmer incomes and stimulating the region.

Collective production of special products

There are over 56 farmers and groups processing a variety of crops. One of these, Fuji no Sato Kobo, is a group of housewives living in the mountainous areas who make dumplings, assorted grains *mochi* (rice cake), konjac and other products and even send them to cities. Mima’s village of Morito manufactures organic yuzu-based products, which is adding value and increasing employment.

By supporting the collective production of special products by such associations, we will pass on processing techniques and improve farmer incomes.



Cross-industry collaboration for dried sweet potatoes

Opening up new sales channels

We have begun to advantageously sell a type of potato native to the region in Tokyo and other cities and will expand this to assorted grains.

To this end, we will work with the Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association and NPO Sojin-Kai to not only produce jointly but sell to cities. In terms of sales structure, in addition to JA, we will use the “Awa Food” group made up of local government and citizens to convey the appeal and value of Tokushima Prefecture foods.

We will also support online sales through groups such as Eene Mima and Miyoshi Yamabiko Furusato, joint sales through groups such as Mama’s Vegetables and Eemonya, and overseas exports such as Hassaku oranges by the Shidehara Hassaku Producer Association, and thus open up new sales channels across the region.

Creating new business through food, farming and tourism

In June 2017, the Togenkyo (Shangri-La) Business Study Group was formed with the participation of local farmers, tourism, trade and manufacturing businesses, and the local government, as well as urban companies with satellite offices in the region.

Focusing on this study group, we will create new businesses and services connecting the diverse industries of food, farming and tourism.



Togenkyo Business Study Group

Branding using the PES system

The many crops cultivated in this region are giving rise to numerous products through diverse cross-industry collaboration. We will lead the way in creating a certification system for GIAHS-branded products as part of PES (p. 10) to add value to these products.

By approving regional products of tested quality and that convey the quality and techniques of the region and differentiating them with a logo, we will add value based on consumer trust and understanding. Furthermore, a portion of the sales will go to preserving and passing on the Nishi-Awa steep slope agriculture system.

Major targets and implementers

We will use the budgets of Tokushima Prefecture, municipalities, agricultural cooperative associations, farmer groups, chambers of commerce, the Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association, the Farm-to-Market Liaison Council and other kinds of producer groups to promote cross-industry collaboration.

As of 2016, farm-to-market sales were 950 million yen but our target is 1 billion yen in 2021.

We will establish the certification system in 2018 and aim for 10 branded products by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, agricultural cooperative associations, Togenkyo Business Study Group

Cooperators	Chambers of commerce, the Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association, Fuji no Sato Kobo, Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association, NPO Sojin-Kai, Awa Food, Eene Mima, Mima no Eemon Promotion Association, Miyoshi Yamabiko Furusato Group, Mama's Vegetables (JA Mima Women's Society Women Farmers Group), Shidehara Hassaku Producer Association, Mima Morito Village, Togenkyo Business Study Group, Farm-to-Market Liaison Council
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d) Farm-stay promotion and food culture sharing

The lifestyle of those living in harmony with Nishi-Awa's abundant nature and ecosystems is attracting domestic and international attention. In fact, in 2016 visitors spent approximately 10,000 nights in farm-stays, led mainly by the Japanese DMO Sora-no-Sato. This half-tourism, half-agriculture activity is a new source of revenue for farmers and helps conserve farmland. Interacting with visitors also helps the farmers rediscover and take pride in the value of the agriculture system, increasing desire to farm.

Increasing and enhancing farm-stays

Inbound tourism and farming students is becoming a source of revenue for farmers in this region, as demonstrated by the *kominka* (traditional Japanese-style house) accommodations run by the Chiiori Alliance & Trust in Ochiai, Miyoshi.

We will enhance this strength by holding workshops in villages, supporting renovations and offering seminars on how to open such a facility to increase the number and quality of farm-stay facilities.

We will also increase the number of nights stayed by creating village travel services, doing promotions in Japan and overseas, developing a network of farm-stay facilities and increasing convenience and service quality.



Farm-stay agriculture experience

Increased interaction through food culture sharing

In recognition of its unique agriculture, food culture and landscape leading to inbound tourism, Nishi-Awa was selected for the Ministry of Agriculture, Forestry and Fisheries' "Savor Japan" in 2016. We will leverage this to share the appeal of the region's food and farming culture overseas, thus further promoting farm-stays.

Furthermore, in order to promote gastro-tourism using the region's food culture as a source for tourism, we will hold workshops to rethink food culture, make an effort to connect producers and restaurant owners, and consider new travel services.

Major targets and implementers

As of 2016 there were 196 farm-stay facilities and 10,049 nights stayed. Our target is to increase this to 400 facilities and 12,000 nights by 2021.

Lead implementer	Sora-no-Sato
Implementers	The Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association, Tokushima Prefecture, municipalities
Cooperators	Chambers of commerce, school boards, agriculture/forestry/fishing lodgings, regional travel companies, Chiiori Alliance & Trust

e) Prevention of damage by and use of wildlife

The prefecture set forth a basic plan for wildlife damage prevention measures and cities and towns devised their own damage prevention plans and they are working together based on these.

We too will implement damage prevention measures with the support of the local government.

At the same time, we will promote cooperation between relevant agencies and efforts to reduce damage such as awareness-raising activities, advanced case studies and protection projects.

Efforts to prevent wildlife damage

We will increase the number of wildlife damage prevention instructors and, together with residents, demonstrate effective prevention technologies, make villages more difficult for wildlife to approach, introduce “monkey dogs” and capture wildlife using large traps and monkey pens.

In order to raise the awareness of village residents and improve technology, we will hold local workshops and we will promote damage prevention measures such as ensuring that there are hunting license holders.

Furthermore, we will use the Conservation Bank (PES: p. 10) to collaborate with city residents in installing protective fencing.



“Monkey dog” training

Promoting the use of captured wildlife

To make good use of the meat of the wild animals captured, such as deer, Koyadaira in Mima, Higashi-Iya and Higashi-Miyoshi in Miyoshi have three meat processing facilities.

16 restaurants in the region are certified to sell this properly-handled venison and other game meat.

We will continue to promote efforts to nurture human resources and encourage use as necessary for a stable supply of game meat.

Major targets and implementers

As of 2016, there were 28 monkey dogs introduced and 48 wildlife damage prevention instructors, but using the budgets of Tokushima Prefecture and municipalities, we will increase this to 40 dogs in total and 59 instructors by 2021.

We will also work with hunting clubs, meat processing facilities, restaurants and chambers of commerce to bring the 2016 cumulative total of 631 processed animals and 16 game meat restaurants to 850 and 20 respectively by 2021.



Game meat processing facility

Lead implementer	Municipalities
Implementers	Tokushima Prefecture, hunting clubs, meat processing facilities
Cooperators	JA Mima, JA Awa Miyoshi, certified game meat restaurants, chambers of commerce

f) Introduction of payments for ecosystem services (PES)

The small, sloped areas this system uses make it difficult to achieve low-cost mass production through automation, threatening its continued viability in a capitalist economy.

On the other hand, the farmland scattered across the forests are home to diverse ecosystems preserving a variety of vegetables and precious grain species like foxtail and barnyard millet as they are cultivated, making this an appropriate, environmentally-friendly farming.

Other value in this ecosystem service can be found in the food culture using local ingredients, unique landscape made up of scattered villages on the face of mountains attracts tourists from other parts of Japan and abroad.

Ecosystem service value

Providing ecological environments	- The combination of various vegetation in the forests and grasslands at different elevations with the farmland cultivating various crops differs across the 200 villages, providing diverse ecological environments.
Conserving genetic resources	- Various vegetables and precious grains like foxtail and barnyard millet are conserved.
Conserving water, soil and the atmosphere	- Practices such as leaving the forest intact near the ridge above the village (" <i>hachigo-giri</i> ") reduces forest overuse and conserves soil and water. - Tilling and <i>kaya</i> covering reduce soil runoff. - Automation is difficult, so the labor by hand emits less CO ₂ .
Providing opportunities for tourism and education	- The food culture and landscape of villages scattered on the mountains is provided to tourists. - The established farm-stay system offers students a hands-on farming experience.

This ecosystem service value is difficult to recognize in the market economy, so we will partner with universities and research institutions to introduce a new way of thinking: payment for ecosystem services (PES) system to obtain the understanding and cooperation of consumers in conserving the system.

Efforts based on introduction of PES system

- We will create a "Conservation Bank" whose funding will include crowdfunding, corporate donations and the "benefit-your-locality" tax scheme, while its human resources will include students doing fieldwork and companies doing CSR activities.
- We will differentiate our products by creating a certification system for GIAHS-branded products that includes a logo to approve produce and processed products from this system. A portion of sales will be allocated to the Conservation Bank to preserve the Nishi-Awa steep slope agriculture system with the trust and understanding of consumers.

Major targets and implementers

We will establish the Conservation Bank in 2018 and procure funding and human resources in partnership with Tokushima Prefecture and municipalities.

Also in 2018 we will establish the certification system for GIAHS-branded products and approve 10 products by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities
Cooperators	Tokushima University, National Agriculture and Food Research Organization, agricultural, commercial and tourism-related organizations

(2) Agro-biodiversity

a) Appropriate management of grasslands

As depopulation and aging are increasing abandoned farmland, we will promote joint management of grasslands not only by residents but by diverse stakeholders.

In this municipality-funded joint grassland management project, residents, companies, organizations, government and tourists will together make the slope agriculture haystacks in autumn and thus pass on the beautification of the landscape.

We will also use the Conservation Bank to encourage grassland management as we promote farm-stays, attract new and returning farmers and partner with companies and universities.



Diverse stakeholders making haystacks

Major targets and implementers

282 grassland species were found in a 2014 survey and this remained the case as of 2016.

Tokushima Prefecture, municipalities and Tokushima University will partner and budget to survey the grasslands every five years to conserve biodiversity.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, Tokushima University
Cooperators	Agricultural groups in each area

b) Native species conservation

At present, although the amount of area has decreased, cultivation of precious grains continues. There are also potatoes, cucumbers and other vegetables native to the region.

In order to almost permanently preserve the genetic resources of crop varieties native to this mountainous area, we will design a framework centering on the Tokushima Agriculture, Forestry, and Fisheries Technology Support Center to take seeds from regular cultivation of genetic resources to be able to flexibly adapt to sudden climate or social changes.

We will also promote regional genetic resource conservation through sub-culturing and raising farmer awareness, thereby stably maintaining species diversity.



Genetic strain conservation by Tokushima Prefecture

Major targets and implementers

There were 15 native grain strains in 2016 and Tokushima Prefecture is budgeting to maintain these into the future.

Lead implementer	Tokushima Prefecture
Implementers	Municipalities, National Agriculture and Food Research Organization
Cooperators	Agricultural groups passing on cultivation of assorted grains and vegetables native to the region

c) Support for grain producer associations, etc.

We will promote efforts to pass traditional grains on to the next generation mainly through regional agricultural groups such as the Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association and NPO Sojin-Kai, focusing on buckwheat on jointly cultivated land.

We will also support the efforts of these agricultural groups in producing, processing and branding assorted grains, which will increase the area of grain cultivation and number of association members.

Major targets and implementers

In 2016, 64 hectares were used for buckwheat, the foremost grain, but we aim to increase this to 75 hectares by 2021.

There are 16 association members but by forming new grain associations and inviting new members, we will increase this to 32 by 2021.

Lead implementer	Promotion Association
Implementers	Regional agricultural groups such as the Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association and NPO Sojin-Kai
Cooperators	Tokushima Prefecture, municipalities, agricultural cooperative associations

(3) Local and traditional knowledge systems

a) Symposiums and events to raise the understanding of residents

Involving not only farmers but all of the region's residents is crucial to passing on the system to the next generation. In 2017, Mima's Junior Chamber led the formation of a GIAHS Promotion Association and held an event at Sadamitsu Yuyukan Road Station to bring agricultural heritage status closer to the everyday lives of residents.

We will continue to hold events and symposiums across the region in collaboration with various organizations to deepen residents' understanding of the system.

Major targets and implementers

We will lead the way in securing funding and raise the number of events from two in 2016 to four per year by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, GIAHS Promotion Association
Cooperators	Agricultural, commercial and tourism-related organizations

b) Blacksmith workshops and successor nurturing

Sustaining blacksmith operations is particularly important in passing on the region's unique agricultural tools. The Tokushima-Mt. Tsurugi GIAHS Promotion Association and the town of Tsurugi are holding blacksmith workshops, but we will continue to nurture successors through blacksmith workshops.



Blacksmith making agricultural tools for slopes

Major targets and implementers

There are currently no successors, so we will use Tsurugi's budget to nurture successors through workshops and secure two by 2021.

Lead implementer	Promotion Association
Implementers	Municipalities

c) Exchanges and information-sharing with developing countries

Steep slope land are unsuited for cultivation as are dry, cold and high-altitude areas. Offering technical guidance to developing countries concerning the steep slope land agriculture system and holding exchanges is highly likely to contribute to increasing food security, so we plan to translate this information into multiple languages to export the system and conduct international exchange.

Major targets and implementers

We will use the budgets of Tokushima Prefecture and municipalities and work with the Tourism Promotion Association to conduct exchanges and share information with developing countries, welcoming 10 study tours by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities
Cooperators	Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association

(4) Cultures, value systems, and social organizations

a) Maintaining regional communication

In order to maintain regional communication, we will proactively dispatch community support personnel and support to maintain valuable cultural activities such as holding workshops in which residents try to solve issues themselves as well as other initiatives in which residents recognize regional issues themselves

and take the lead in addressing them.

We will conserve our agricultural heritage and get those outside of the region to understand and support it by reminding residents of their own precious culture, and helping them convey its appeal to the outside.

Major targets and implementers

There were 20 communication/community support personnel as of 2016 but we will increase this to 30 by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities

b) Passing on traditional food culture

From *sobagome zosui* (buckwheat porridge) to preserved foods such as dried foods, this region is home to a diverse food culture. In order to pass on this culture and its techniques to the next generation, we will hold workshops led by regional agricultural groups on topics such as how to make *sobagome* (buckwheat rice) and dry foods.



Sobagome (buckwheat rice)

Major targets and implementers

Using the budgets of Tokushima Prefecture and municipalities, we will increase the number of workshops from five in 2016 to 10 per year by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities
Cooperators	Regional agricultural groups

c) Collaboration with educational institutions to pass on food and agricultural cultures

The generation familiar with the food and agricultural cultures nurtured in the region’s slope land villages is shrinking and many local elementary, junior-high and high school students are not acquainted with it.

We will partner with educational institutions to put on school-delivery and field-trip classes, cultural succession programs, dietary education and other projects to pass on this understanding to these next-generation students.

Major targets and implementers

We will do this in partnership with each municipality’s schools using the budgets of Tokushima Prefecture, the municipalities and each school board. There were 2 such cultural projects in 2016 but we aim to have 10 per year by 2021.



A school-delivery class at a local elementary school

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, school boards

(5) Landscape and seascape features

a) Use of vacant houses and facilities

In order to permanently preserve the villages and landscapes, we will promote the use of vacant houses and facilities by matching owners and potential users.

Major targets and implementers

30 vacant houses or facilities were used in 2016 but we will increase this to 60 by 2021 using the budgets of Tokushima Prefecture and the municipalities.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, school boards

b) Promotion of *kominka* accommodation use

The Ochiai district of Miyoshi City is carrying out a project to renovate *kominka* (traditional Japanese-style houses) into accommodations.

We will build on this by attracting foreign tourists seeking Japan’s “lost rural landscapes,” helping people rediscover the value of the landscape and preserving it.



Renovated *kominka* accommodation

Major targets and implementers

We will preserve village landscapes and *kominka* by working with the Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa tourism promotion association to attract more guests to *kominka* accommodations. In 2016 there were 8 *kominka* accommodations and 2,790 users, so we will increase this to 3,069 users by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities, Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association

c) Use of *kaya* (thatching grass) to renovate *kominka*

We will support preservation societies and successor nurturing as part of *kominka* renovation projects aimed at stabilizing the supply of local grass for *kaya* thatched-roofs.

Furthermore, we will use the Conservation Bank (PES) to maintain the *kaya* grasslands in collaboration with city residents to preserve the landscape and biodiversity.



Thatched roof repair

Major targets and implementers

Using Miyoshi’s budget and other funding to organize a Miyoshi-based preservation society, we will increase the stable supply of *kaya* from 200 bundles in 2016 to 1,000 bundles over five years.

Lead implementer	Promotion Association
Implementers	Municipalities, preservation societies
Cooperators	Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association

d) Landscape beautification by diverse participants

Some of the villages are scattered with signs and other man-made fence-like objects to prevent damages from wildlife that detract from the landscape. Accordingly we will select a model area in which to conduct trial wildlife damage prevention fencing made of natural materials.

We will also use the Conservation Bank (PES) to carry out community preservation and landscape beautification projects with residents as well as companies, universities and other participants.

Furthermore, the government will lead improvement of signage by standardizing design using natural colors and considering the landscape.



Landscape beautification activities by a sponsor company

Major targets and implementers

There were 2 such beautification projects in 2016 but with funding from Tokushima Prefecture and municipalities, we will implement 4 projects per year by 2021.

Lead implementer	Promotion Association
Implementers	Tokushima Prefecture, municipalities
Cooperators	Agricultural, commercial and tourism-related organizations

List of Activities and Objectives

GIAHS Conservation Plan

(1) Food and livelihood security

Nishi-Awa, Tokushima Prefecture

Action	Implementers (◎ Lead implementer ○ Implementer △ Cooperator)	Period					Criteria	
		2017	2018	2019	2020	2021	Current (2016)	Target
Threat/issue: Aging/lack of young labor								
Worker measures	◎ Tokushima Prefecture ○ Municipalities, agricultural cooperative associations, farm service associations (Agri-Support Miwa, Agri-Support Miyoshi) △ Yamabiko Furusato Group, Dream Production Association Co., Ltd., Yamashiro Tea Agricultural Association Inc., JA Mima Women's Society Women Farmers Group	○	○	○	○	○	New farmers: 5	30
Threat/issue: Agricultural income stagnation								
Famland conservation measures	◎ Promotion Association ○ Tokushima Prefecture, municipalities, agricultural cooperative associations, farm service associations (Agri-Support Miwa, Agri-Support Miyoshi) △ Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association, NPO Sojin-Kai, Nisisyoyo Yoisyoyo no Kai, Yamashiro Tea Agricultural Association Inc., volunteer groups	○	○	○	○	○	Famland conservation advisors: 0	20
Cross-industry collaboration	◎ Promotion Association ○ Tokushima Prefecture, municipalities, agricultural cooperative associations, Togenkyo Business Study Group △ Chambers of commerce, the Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association, Fuji no Sato Kobo, Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association, NPO Sojin-Kai, Awa Food, Ene Mima, Mima no Emon Promotion Association, Miyoshi Yamabiko Furusato Group, Mama's Vegetables (JA Mima Women's Society Women Farmers Group), Shidehara Hassaku Producer Association, Mima Morito Village, Togenkyo Business Study Group, Farm-to-Market Liaison Council	○	○	○	○	○	Farm-to-table sales: 950 million yen Branded products: 0	1 billion yen 10 products
Farm-stay promotion and cuisine sharing	◎ Sora-no-Sato ○ The Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association, Tokushima Prefecture, municipalities △ Chambers of commerce, school boards, agriculture/forestry/fishing lodgings, regional travel companies, NPO Chiiori Trust	○	○	○	○	○	Farm-stay facilities: 196 Nights stayed: 10,049	400 facilities 12,000 nights
Threat/issue: Loss of desire to farm due to damage from wildlife								
Prevention of damage by and use of wildlife	◎ Municipalities ○ Tokushima Prefecture, hunting clubs, meat processing facilities △ JA Mima, JA Awa Miyoshi, certified game meat restaurants, chambers of commerce	○	○	○	○	○	Monkey dogs: 28 Wildlife damage prevention instructors: 48 Cumulative wild animals processed: 631 Certified game meat restaurants: 17	40 dogs 59 instructors 850 animals (cumulative) 20 restaurants
Introduction of payments for ecosystem services (PES)	◎ Promotion Association ○ Tokushima Prefecture, municipalities △ Tokushima University, National Agriculture and Food Research Organization, agricultural, commercial and tourism-related organizations	○	○	○	○	○	GIAHS-branded products: 0	10

(2) Agro-biodiversity

Action	Implementers (◎ Lead implementer ○ Implementer △ Cooperator)	Period					Criteria	
		2017	2018	2019	2020	2021	Current (2016)	Target
Threat/issue: Insufficient grassland management								
Appropriate management of grasslands	◎ Promotion Association ○ Tokushima Prefecture, municipalities, Tokushima University △ Agricultural groups in each area	○	○	○	○	○	Grassland flora: 282 species	Same, maintain
Threat/issue: Decline in grain production								
Native species conservation	◎ Tokushima Prefecture ○ Municipalities, National Agriculture and Food Research Organization △ Agricultural groups passing on cultivation of assorted grains and vegetables native to the region	○	○	○	○	○	Native grains: 15	Same, maintain
Support for grain producer associations, etc.	◎ Promotion Association ○ Regional agricultural groups such as the Iya Grain Producer Association, Tsurugi Grain Producer and Distributor Association and NPO Sojin-Kai △ Tokushima Prefecture, municipalities, agricultural cooperative associations	○	○	○	○	○	Buckwheat area: 64 ha Grain producer association members: 16	75 ha 32 members

(3) Local and traditional knowledge systems

Action	Implementers (◎ Lead implementer ○ Implementer △ Cooperator)	Period					Criteria	
		2017	2018	2019	2020	2021	Current (2016)	Target
Threat/issue: Lack of information-sharing within the region								
Symposiums and events to raise the understanding of residents	◎ Promotion Association ○ Tokushima Prefecture, municipalities, GIAHS Promotion Association △ Agricultural, commercial and tourism-related organizations	○	○	○	○	○	Symposiums, etc.: 2 per year	4 per year
Threat/issue: Lack of farm tool culture successors								
Blacksmith workshops and successor nurturing	◎ Promotion Association ○ Municipalities	○		○		○	Successors: 0	2
Threat/issue: Lack of dissemination outward								
Exchanges and information-sharing with developing countries	◎ Promotion Association ○ Tokushima Prefecture, municipalities △ Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association		○		○		Study tours from overseas: 0	10

(4) Cultures, value systems, and social organizations

Action	Implementers (◎ Lead implementer ○ Implementer △ Cooperator)	Period					Criteria	
		2017	2018	2019	2020	2021	Current (2016)	Target
Threat/issue: Weakening of community functions due to population decline								
Maintaining regional communication	◎ Promotion Association ○ Tokushima Prefecture, municipalities	○	○	○	○	○	Community support members: 20	30
Threat/issue: Passing on of food and farming culture								
Passing on traditional food culture	◎ Promotion Association ○ Tokushima Prefecture, municipalities △ Regional agricultural groups	○	○	○	○	○	Seminars: 5 per year	10 per year
Collaboration with educational institutions to pass on food and farming culture	◎ Promotion Association ○ Tokushima Prefecture, municipalities, school boards	○	○	○	○	○	Projects to pass on culture: 2 per year	10 per year

(5) Landscape and seascape features

Action	Implementers (◎ Lead implementer ○ Implementer △ Cooperator)	Period					Criteria	
		2017	2018	2019	2020	2021	Current (2016)	Target
Threat/issue: Increase of vacant houses								
Use of vacant houses and facilities	◎ Promotion Association ○ Tokushima Prefecture, municipalities, school boards	○	○	○	○	○	Vacant houses/facilities in use: 30	60
Promotion of <i>kominka</i> accommodation use	◎ Tokushima Prefecture, municipalities, Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association ○ Promotion Association	○	○	○	○	○	<i>Kominka</i> accommodations: 8 Users: 2,790	Same, maintain 3,069 users
Use of <i>kaya</i> (thatching grass) to renovate <i>kominka</i>	◎ Promotion Association ○ Municipalities, preservation societies △ Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association	○	○	○	○	○	<i>Kaya</i> for thatched roofs: 1,000 bundles (approx. 1.5 m circumference per bundle)	200 bundles per year
Threat/issue: Man-made objects detracting from the landscape								
Landscape beautification by diverse participants	◎ Promotion Association ○ Tokushima Prefecture, municipalities △ Nishi-Awa ~ Mt. Tsurugi and Yoshinogawa Tourism Promotion Association	○	○	○	○	○	Activities: 2 per year	4 per year

6. Stakeholders and method of monitoring and assessment

The Tokushima-Mt. Tsurugi GIAHS Promotion Association was established in July 2015 for the purpose of seeking GIAHS recognition and preserving and passing on the Nishi-Awa Steep Slope Land Agriculture System. Members include local government, agricultural cooperatives, regional agricultural groups, Tokushima Prefecture, universities and research institutions.

Within the Tokushima-Mt. Tsurugi GIAHS Promotion Association is the general assembly, which determines overall direction, monitoring and assessment; the board of governors, which discusses important projects and conducts Action Plan progress monitoring and assessments; and the task force, which implements parts of the Action Plan.

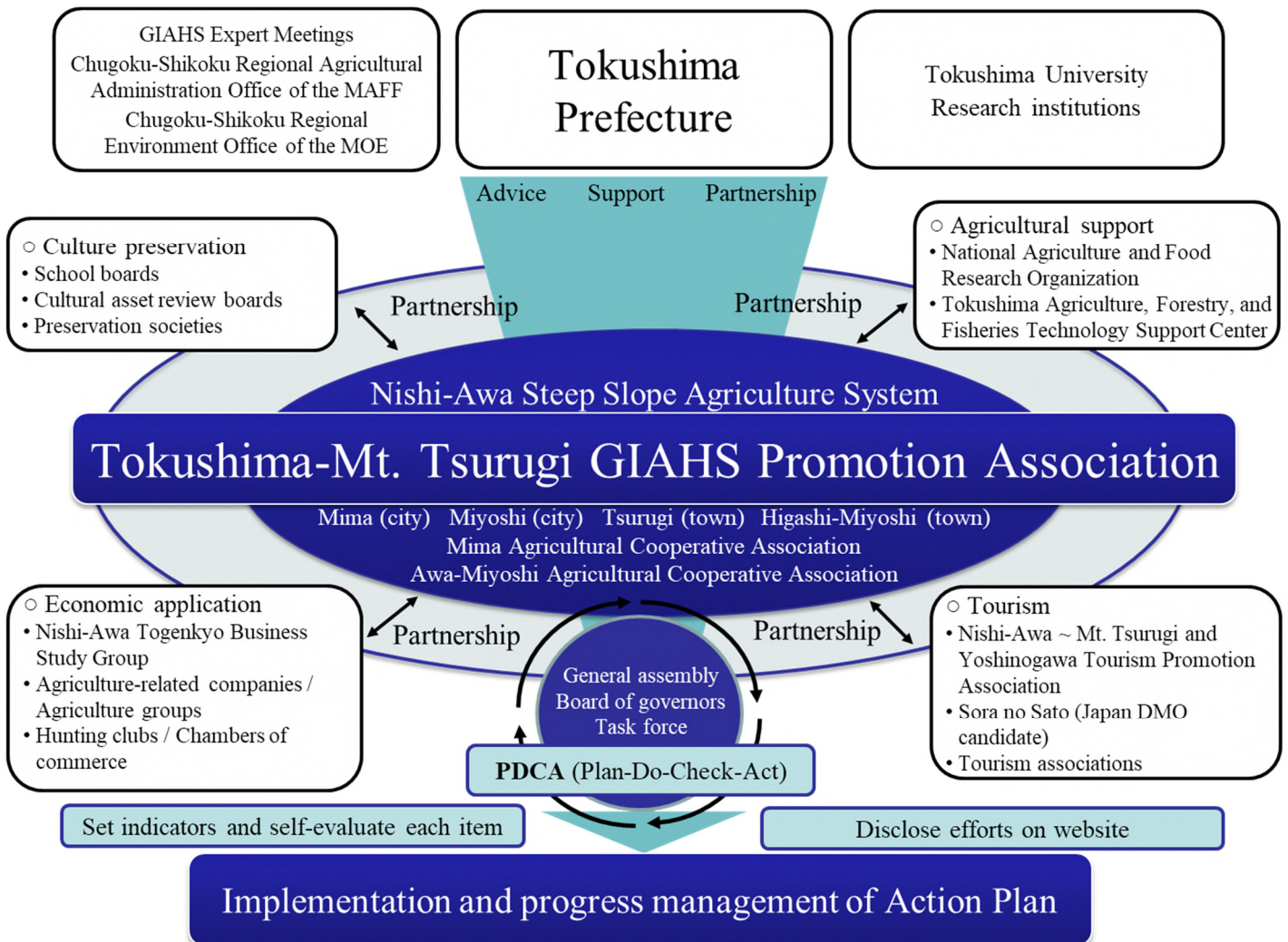
In order to decisively execute the Action Plan, the Tokushima-Mt. Tsurugi GIAHS Promotion Association will set indicators for each item, manage progress, assess and evaluate.

Specifically, the board of governors, in the leadership role, will receive annual status updates from those implementing the activities and objectives listed on pages 17-19, compare progress to the Action Plan, evaluate this and then report it to the general assembly for their evaluation.

Based on this evaluation and activity assessment, the Tokushima-Mt. Tsurugi GIAHS Promotion Association will make the necessary improvements or revisions each year. Determining the best methods to implement these improvements and revisions, and then executing them, will mainly be the responsibility of the task force.

The Tokushima-Mt. Tsurugi GIAHS Promotion Association will publish details of its work on its website and, by decisively executing the Action Plan, achieve its targets and thus contribute to preserving and developing the steep slope land agriculture system.

Action Plan Implementation and Assessment Structure



7. Conclusion

The Nishi-Awa steep slope agriculture system overcomes the challenging conditions of the steep slopes, flexibly adapts to the weather disasters and social changes, and contains the wisdom of the predecessors who succeeded in carving out an abundant life for themselves through this unique way of farming.

One part of this wisdom, its ability to use steep slopes sustainably, can make a contribution to developing countries that need to expand farmland to cope with rising populations.

The semi-subsistent cultivation of various traditional grains in small quantities is also a valuable contribution to a world in which the economy is becoming increasingly global and farming is becoming increasingly large-scale and one-dimensional.

On the other hand, developed countries like Japan face challenges such as decreasing farmland and farmers and aging producers, and this system is no exception.

Therefore, we will unite with farmers, residents, local government, researchers, organizations, companies and others to implement this Action Plan, restoring pride and hope to the region's farmers and sustainably guaranteeing livelihoods, thereby ensuring the passing on of the Nishi-Awa steep slope agriculture system to the next generation and becoming a region making a global contribution.