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## 第 1 章

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# Collaboration between Forestry and Tourism in Tozawa Community

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## 戸沢集落における林業と観光の連携

### <要約>

人口減少と高齢化に悩む日本のなかでも、日本の森林の 6 割を保有する山村の人口減少と高齢化は深刻である。山村は林業などによって森林の維持に大きな役割を果たしてきた。森林保護のためには山村の振興が必要であり、山村振興のためには森林を含む地域資源をどのように活用するかが鍵となる。

山村のひとつである阿智村の戸沢集落はその振興に成功しているが、どのように地域資源、とくに森林を活用しているのだろうか。この分析はまちおこしに取り組む他の市町村の参考になるだろう。

森林の利用は林業、観光業、林業と観光業の連携の 3 つに分類でき、この 3 点から戸沢集落の地域資源利用を分析する。

戸沢集落は阿智村の中でも山間部に位置しており、人口減少と高齢化に悩まされている。度重なる水害と闘いながら、観光業を発展させてきた。

戸沢集落についての文献は多くない。そこで、村役場、集落住民への聞き取り調査を行い分析する。

戸沢集落の林業は日本全体と同じ問題を抱えている。まず、森林が占める割合が高いにもかかわらず、林業に従事する人々は少ない。また、木材生産にかかるコストは他国に比べ高くなっている。さらに低い木材価格が林業従事者の所得を低くしている。昔に比べて森林との係わりが少なくなったため、所有者にも私有林間の境界が分からなくなっており、鳥獣による被害も増えている。戸沢集落では木材よりもきのこの生産が盛んである。

阿智村は昼神温泉を擁する観光の町であり、第 5 次総合開発計画においても観光を重視している。戸沢集落も温泉や釣堀など観光業を発展させており、森林などの集落の景観を観光に利用している。花桃、紫陽花や紅葉はその例である。しかし、日帰り客が多いため、観光客数の割に収益は高くない。また、毎年 20 万人の観光客を集める花桃まつりも、集落の住民すべてが関与できていない、花桃の管理が大変、大変な管理の割にまつりからの収入が少ないといった問題をかかえている。

戸沢集落では林業と観光業との連携が試みられている。飯伊森林組合は、きのこ狩り、門松づくりや巣箱づくりといった体験型旅行を企画している。また、戸沢集落は長野県の森林の里親促進制度の下、企業の社員やその家族に間伐、作業道づくりといった林業体験を提供している。村の全村博物館構想は動き始めたばかりだが、林業と観光業との連携を促進させる可能性をもっている。しかし、複雑な森林の権利関係、住民が体験型旅行の運営に自発的に参加できていない、全村博物館構想が住民に十分に理解されていないといった障害が残されている。

最後に、発見した問題点について提案を行う。まず、戸沢集落は水害に悩まされてきたが、水害との闘いの歴史を全村博物館構想の下で活用し、被災前後の写真をパンフレットに使ったり体験談を観光客に話してみるのはどうだろうか。林業について、作業道開設による木材生産コストの削減、きのこ生産による収入の向上、きのこ狩りや巣箱づくりなどの体験型旅行の充実が望まれる。花桃まつりについて、駐車場料金 500 円に代えて、一人 100 円の入場料金を徴収するのはどうだろうか。また、まつりで村民がまつりに関連した商品やお土産を販売すれば、まつりからの収入を増やすことができる。さらに、花桃の管理という負担を軽減するために学生などのボランティアを募集してみるのはどうだろうか。日帰り客の滞在を促すために、伝統音楽の演奏など夜のエンターテインメントを旅館が行うのはどうだろうか。阿智村や戸沢集落の知名度向上について、阿智村だけの写真コンテストを開催するのはどうだろうか。さらに海外からの観光客をも引きつけるために、英語のウェブページ開設が望まれる。

# 1. INTRODUCTION

## 1-1. Background of Research

Japan faces depopulation and aging. Its population peaked at 127,790,000 in 2004 and since then has decreased (Cabinet Office [2009a]). People aged sixty-five or over account for twenty-two percent of the population in 2008 (Cabinet Office [2009b]).

Its mountainous areas are in a more severe situation than cities. Areas designated by the Mountainous Municipality Promotion Law of 11 May 1965 (law number sixty-four) have only three percent of the country's entire population, while they occupy a half of its territory. Residents aged sixty-five or over make up thirty-one percent of these areas in 2005 (Forestry Agency [2009]).

Promotion of these rural areas is necessary to preserve the wilderness in Japan as they encompass sixty percent of wooded areas in the country and residents of these smaller communities maintain the forests. (Forestry Agency [2009]). Their disappearance causes its deterioration and prevents it from fulfilling its multi-function (Ohno [2009]). A key of their promotion is how villagers can utilize their local resources including the forests themselves.

## 1-2. Research Topic and Objectives

Tozawa community in Achi Village is located in a mountainous area and is succeeding in promoting its forests. How does it make use of its local resources to further its goals? Its analysis contributes to other municipalities which strive to develop them.

Utilization of forests can be categorized into three sections while a variety of functions can be achieved through effective maintenance. The Science Council of Japan classifies eight functions. Forest utilization can (1) preserve biodiversity; (2) conserve the global environment; (3) prevent soil and land corrosion; (4) conserve water resources; (5) provide a comfortable environment; (6) create an area of recreation; (7) develop culture and (8) provide material products (Forestry Agency [2009]). Among these eight functions, humans directly utilize the sixth and eighth point.

**Figure 1-1. Correspondence between the Multifunction of Forests and Related Sections**

Multifunction of Forest	Name of Section
(8) provide material products	Forestry
(6) being a spot of recreation	Tourism
Both (6) and (8)	Collaboration between Forestry and Tourism

Regarding material products, forest workers extract logs, timber, firewood and mushrooms from wooded areas. The Japanese government has pursued a policy of increasing the number of products produced by forests over the years (Kanuma [1998]). At the same time people enjoy recreation in forests such as hiking or camping.

The government encouraged private companies to build large-scale resort facilities in wooded areas from late 1970s to early 1990s. The reason for this encouragement is that land prices in forested areas were relatively low and forestry had become less profitable than before. However, with the bursting of the economic bubble in the early 1990s aggressive resort building also came to a halt. (Oura [2008]). Another approach to forestry utilization is an amalgamation of the consumption of forest products while enjoying the natural surroundings recreationally. Mushroom gathering is a prime example of this approach; while enjoying nature people can collect, consume and sell their spoils. In this chapter the research group will examine Tozawa community through the following three approaches: use of wooded areas through forestry, tourism and a collaboration between forestry and tourism.

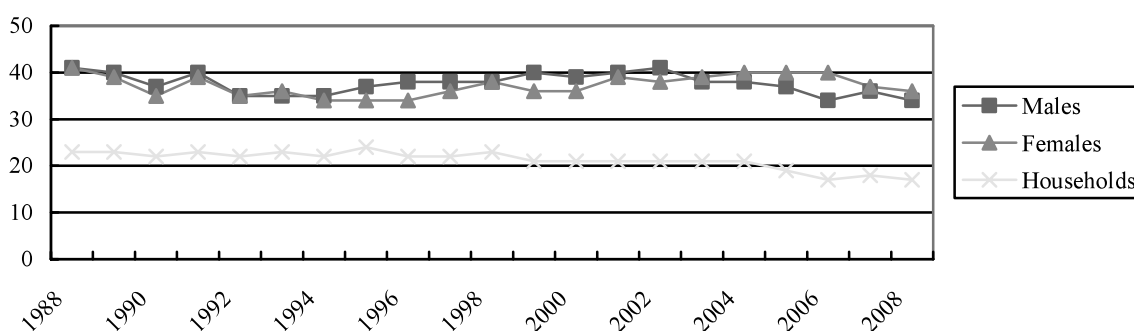
### 1-3. General Information on Tozawa Community

Tozawa community which belongs to the Chisato Nishi (West Chisato) district is one of the most mountainous in Achi Village. The *Motodanigawa* river flows rapidly through it and heavy rain often floods the river so residents are forced to battle sporadic flash flooding.

The community is mainly covered by forest. Those who work in the forestry industry are declining in number due to the low income. Although trees planted after World War II have grown sufficiently to be cut and processed, residents in Tozawa consider how the timber should be used as the prices are extremely low (for more on this subject, see section two).

Instead of forestry, the community has developed tourism. Tozawa has a hot spring hotel and attracts many tourists through the Hanamomo trees its residents have planted. Moreover, it has facilities where visitors can eat local products and play sports. Nevertheless, the community faces depopulation and aging. During the last 10 years, its population has slightly decreased as can be seen in figure 1-2.

Figure 1-2. Population in Tozawa Community



Source: Achi Village Office's Paper

(Paper presented in the 2009 DFW)

Moreover, the demographics of the community divided into generations vividly show the social problems. On the one hand it has few people in their twenties and thirties; an age group that is usually busy starting families



(See Figures 1-3 and 1-4). Tozawa has few children, in particular girls, on the other hand it has many residents over sixty-five years old. It is not difficult to see the risk of a decreasing population without sufficient measures to encourage people from outside the community to migrate and its young people not to leave.

Figure 1-3. Male Population in Tozawa Community

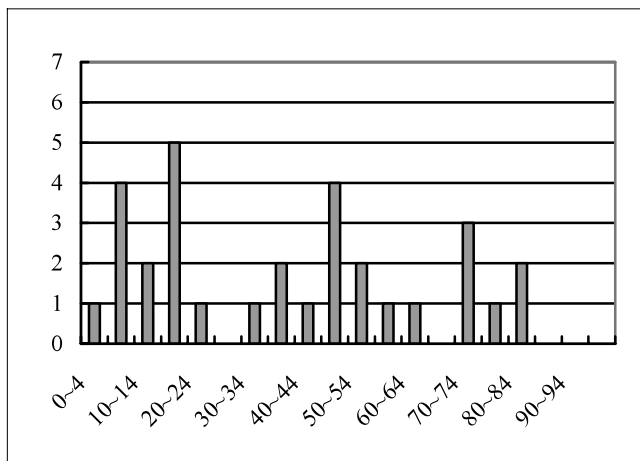
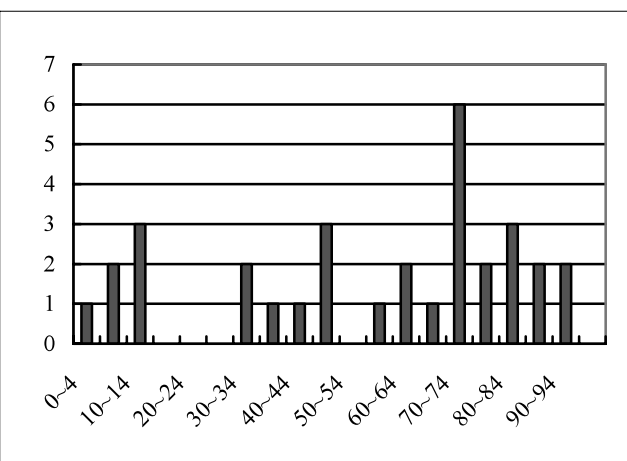


Figure 1-4. Female Population in Tozawa Community



Source: Achi Village Office's Paper

(Paper presented in the 2009 DFW)

Achi village office encourages each community to set its own community plan (Achi Village [2008a]). However, Tozawa community has delayed in determining a community plan.

## 1-4. Methodology

To analyze Tozawa community, interviews and questionnaires were necessary due to the scarcity of literary articles and statistics. In this field work, the many interviews were conducted and few questionnaires were distributed so as to reduce the burden on residents and village officers. To increase objectivity of the research however varying levels of interviewees needed to be approached. As a result residents, officers of forest owners' association as well as officers in the Achi village office were designated as target interviewees.

It must be recognized however that these interviews have limitation despite the arrangements. First, this actual field work was only conducted over a short period of time. On top of this, interviews could not be conducted in depth as interviewees were very busy and the researchers also had a limiting schedule as can be seen below. Finally, interviews were hampered due to translation issues that effectively cut the time of some interviews in half.

	28 Oct. 2009	29 Oct. 2009	30 Oct. 2009
9		Han-i Forest Owners' Association, West branch Office Director of West Branch Office	Observing Tozawa community
10			
11			
12			
13	Village Office Officer in charge of forest	Tozawa Assembly Hall Members of <i>Youkakai</i>	Hirugami hot spring Area support Inc. Director
14			
15	Village Office Curator of "entire village museum"		
16			
Night		Tozawa Assembly Hall Members of <i>Megumikai</i> (Youth group) and <i>Hanamomokai</i> (Women group)	

## 2. FORESTRY

Forestry is the science of managing forests, tree plantations and related natural resources. Its main goal is to create and implement systems that allow forests to continue a sustainable continuation of environmental products and services. The challenge is to create systems that are socially acceptable while sustaining the resource and other related industries. The world is on the brink of a number of important decisions. A balance must be struck in preserving forestry, combating global warming to preserve the human race. In light of this issue working group members decided to research issues surrounding the forestry industry.

Forests cover sixty-four percent of the total land in Japan. This is a great contrast with the numbers one sees in developing countries. This high proportion of forest also helps Japan to meet the requirements set in the Kyoto Protocol. Of the 24 million ha (59.5 million acres) of forest in Japan, the government owns thirty percent, which it maintains under strict regulations limiting overcutting. The remainder belongs to members of the private sector.

Forest management and erosion control are necessary in a land where gradients are very steep and flooding is frequent. To practice the theoretical knowledge gained in textbooks the research group along with the 3 other groups traveled to Achi Village in Nagano Prefecture. The beauty of Achi Village, kind residents and organizational officers made the research much easier to carry out. Before the trip the working group decided to set a plan to gather general data to examine tourism and forestry while interviewing members of the community and related organizations as a means of exploring possibilities of collaboration between tourism and forestry. To investigate the characteristics of forestry in Achi Village and discover tourism possibilities may be a difficult idea to pursue but through analysis the research group found a number of viable options.

The beauty of the forests in Achi Village is admirable. One can enjoy the well aligned cut of the trees and colorful leaves in fall season. However, this beauty does little to meet the production demands of Japanese consumers. The first issue is the high cost of producing timber. As can be seen from the table below it is many times higher even compared to other developed countries.

**Figure 2-1: Comparison of Wood Processing Costs**

	Cost of producing wood (¥1000 / m <sup>3</sup> )
Sweden	1.5
Finland	1.4
Austria	3.1~3.6
Japan	7.0

Source: Forestry Agency [2006]

The high cost of production is accompanied with cheap import costs from foreign countries. This in turn makes it difficult for local residents to rely on the daily living on forestry incomes. In addition, working conditions in the wilderness may not be as easy as in urban areas. Low income along with hard labor conditions forces local workers to switch occupations from forestry to agriculture or move to urban areas. Figure 2-2 below illustrates this point.

**Figure 2-2: Comparison of Average Household Incomes nationwide**

Average Income of all households (from 2007 Jan 1 to 2007 Dec 31)	Average Income of Forestry related households (2007 Apr 1 to 2008 Mar 31)
¥5,562,000(\$55,620)	¥291,000(\$2,910)

Source: Ministry of Health, Labor and Welfare, *Heisei 20 nen Kokumin Seikatsu Kiso Chosa*

Forestry Agency, *Heisei 19 nendo Rinka no Ringyo Keiei Shushi*

As mentioned previously, private ownership makes up two-thirds of all forestry ownership in Japan. However a question arises: do forest owners really know the boundaries of forests inherited from their parents?

The answer of an interviewee was unclear. It is complicated to define the exact boundaries between forest owners. This in fact makes potential forestry workers even less interested in engaging in forestry. In spite of the fact that private ownership covers over 85 percent of Achi village, the majority of owners are not engaged in forestry as shown in figure 2-3.

**Figure 2-3: Distribution of Forests**

	Japan(ha)	Nagano Prefecture(ha)	Achi Village(ha)
Total Area	37,280,700	1,356,223	17,031
Total Forest Area	25,097,000(67%)	1,059,821(78%)	15,003(90%)
Natural Forest	14,750,000(59%)	613,856(58%)	N/A
Planted Forest	10,383,000(41%)	445,965(42%)	N/A
State Forest	7,686,000(30%)	378,489(36%)	2,248(14%)
Non State Forest	17,411,000(70%)	678,358(64%)	12,755(86%)

Source: Forestry Agency [2009]

Nagano Prefectural Office [2008a]

Nagano Prefectural Office [2008b]

**Figure 2-4: Number of People Engaged in Forestry**

	1965(S40)	2005(H17)
Japan	262,432	46,618
Nagano Prefecture	11,405	1,543
Achi Village	N/A	10

Source: Forestry Agency [2009]

Nagano Prefectural Office [2008a]

Achi Village Office [2009]

It follows that the high number of owners is accompanied with very low participation in forestry. The working group has found the lack of forestry financing as another source of difficulty. This is demonstrated in figure 2-5.

**Figure 2-5: Budget to Forestry in 2008**

	Japan	Nagano Prefecture	Achi Village
Total Budget	¥83,061,343mil	¥833,052,126,000	¥485,700,000
To Agriculture, Forestry and Fisheries	¥1,822,487mil(2.2%)	¥43,441,056,000(5.2%)	¥120,550,000(2.5%)

Source: Ministry of Finance [2007]

Nagano Prefectural Office [2007]

Achi Village Office [2008b]

Interviewees in Tozawa community confirmed the lack of finance to forestry shown by the statistics. However, forestry must not always be associated with wood production. Mushroom production is also a significant source of income as shown in figure 2-6.

**Figure 2-6: Forestry Related Production in 2007**

	Wood	Charcoal	Mushroom	Byproduct
Japan	¥225.58bil	¥5.48bil	¥208.30bil	¥2.08bil
Nagano	¥5.46bil	¥0.17bil	¥44.19bil	¥0.66bil

Source: Forestry Agency [2009]

Nagano Prefectural Office [2008a]

Although the working group could not find the exact statistics for Achi Village, the interviewees confirmed that mushroom gathering is one of the main sources of income. In fact, mushrooms in the Achi Village market were much more delicious compared to mushrooms in urban markets. In this sense the working group concluded that mushrooms could be a very strong factor in attracting tourists. Another attractive point that interviewees mentioned was the atmosphere of the forest including the rich smell of the trees. Due to these factors it is strongly recommended that tourists be activated in the actual harvesting of mushrooms.

There are more issues that the primarily financial points mentioned above. The forests also need to be preserved from parasitic insects and the destruction of certain animals. There is need to subsidize insect extermination efforts which is performed by spraying in spring. Tozawa community does not have enough manpower to protect the forestry industry. To solve this problem, it needs to attract interested parties from beyond the community.

### 3. TOURISM

#### 3-1. General Information

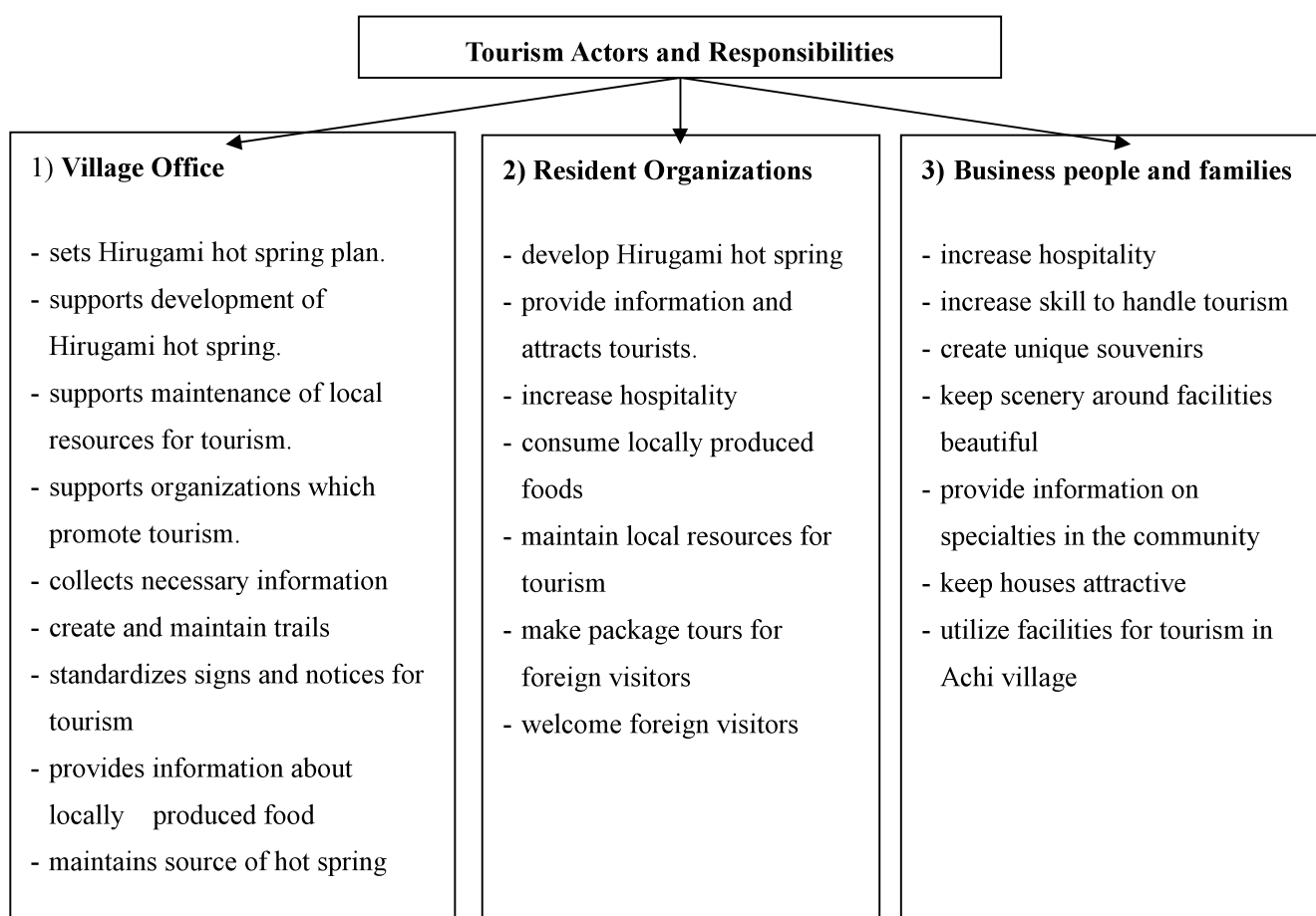
Tourism is a major source of income for Achi Village. This area has a variety of tourist attractions such as

Hirugami *Onsen*, Hanamomo festival, *Ajisai* and *Koyo*. To maximize the income from tourism, Achi Village cites a number of tourism goals in the Achi Village Development Plan. These objectives provide the framework of tourism management in the area.

The primary goals of tourism in Achi Village as mentioned in its fifth General Development Plan are (1) promoting Hirugami Hot Spring; (2) strengthening organizations for tourism promotion; (3) promoting historical sites along the Tosando Route; (4) strengthening resources for tourism in Namiai district; (5) activating the village by using local products; (6) promoting tours of experiential tourism to attract visitors and (7) strengthening functions to dispatch information.

Recently the number of tourists coming to Achi Village has been decreasing due to the shorter travelling time from Nagoya, the nearest big city to the village. Visitors tend to visit only during the day instead of staying overnight and consequently the village cannot earn as much money. To counter this, Achi encourages tourism in order to increase the cash inflow.

**Figure 3: Actors and Their Responsibilities in Tourism Promotion**



Source: Achi Village [2008a]

Tozawa community specifically has a number of scenic tourism locations such as the Hanamomo Festival, *Ajisai* (Hydrangea), and the vividly colored mountains in fall. However these events are seasonal tourism and

there is no attraction that brings in tourists on an annual basis. Tozawa officials are currently considering how to maximize tourism over the year and achieve a sustainable industry. Further difficulty for Tozawa community is the decreasing number of visitors, especially for the Hanamomo Festival.

### 3-2. Potential Tourism Sites in Achi Village

Achi Village and Tozawa community in particular have many potential tourism sites which are managed and developed separately. Two main tourism spots are Hirugami Hot Spring and Hanamomo Festival. Both are engines of the tourism industry in Achi Village and Tozawa.

#### 3-2-1. Hirugami Onsen (Hirugami Hot Spring)

Hirugami Hot Spring is a key tourism site in Achi Village. By referring to its fifth General Development Plan, Hirugami Hot Spring is the central focus of tourism development. This is naturally due to the huge potential of the hot spring to attract tourists throughout the year. However, the number of people visited Hirugami Hot Spring has been decreasing recently partly resulting from the competition of tourism areas. Demonstrating the interactive nature of the hot spring, one village officer in charge of tourism stated that at the Hanamomo Festival visitors would come to Hirugami Hot Spring to relax after enjoying the scenery at the festival. Hirugami Hot Spring has one special feature: the hot spring water has an alkalinity level (ph) of 9.8. This means the water is suitable to moisturize skin which is one of the factors attracting visitors to the hot spring.

Photo 1 Hanamomo Festival



(Source: Webpage of Hotel *Gessen*)

#### 3-2-2. Hanamomo Festival

The Hanamomo is a beautiful tree that has three colors of flower: white, red and pink. The trees were planted along the river and the road to leading to Tozawa Community. Today, there are about three thousand five hundred trees in the area. Originally, the objective of planting Hanamomo trees is to attract women from other regions to be wives of the villagers in Tozawa. Through the festival, the community hoped they would be able to overcome the depopulation problem. The Hanamomo Festival usually starts in April or May depending on the weather. In 2009 the trees bloomed earlier and many visitors did not come to see

the festival. Even though the Hanamomo Festival is always visited by a great number of visitors (approximately two hundred thousand visitors in 2008 which decreased in 2009 to one hundred thousand visitors), Tozawa does not earn much money as for the most part it only earns parking fees. Community residents conduct tree maintenance by themselves yet according to interviewees, the maintenance costs are still five million yen. The maintenance responsibilities are divided into two, cutting grass around the trees twice a year and applying fertilizer once in a year.

### 3-2-3. *Koyo* (Colorful Mountain)

Tozawa possesses mountainous areas covered by forest and during the fall season these regions change brilliant colors creating an area of scenic beauty. *Koyo* usually lasts for two months, from October to November and has potential to attract more tourists than Hanamomo festival as it last longer than the flower festival.

### 3-2-4. *Ajisai* (Hydrangea)

*Ajisai* along a main road in Tozawa blooms around June to July every year. Unparalleled vibrancy in color is their most attractive point.

### 3-2-5. Fishing Pond

The fishing pond is situated exactly in the Tozawa Community housing area, near a river. Visitors can enjoy fishing with families and friends; then can cook and eat the fish they catch after fishing. The fishing period is only from March to December of each year.

## 3-3. Problems and Limitations

Throughout the year, Tozawa community tries to improve the tourism sites and other supporting infrastructure. Officials attempt to find new concepts to increase visitor numbers. However, in implementing new concepts, they face many problems. The first is a scheduling problem. The schedule of blooming flowers at times deviates from the estimated time. Early or late blooming causes a decrease in the number of visitors. In addition to this the main road to reach Tozawa is a dead end; only one road leads to Tozawa community and does not continue onward. Further, not all villagers in Tozawa community take part in the Hanamomo Festival thus squandering the opportunity to earn money and support the event. This situation leads to the next issue which is the maintenance of the Hanamomo trees. The community is overwhelmed by trying to deal with the Hanamomo trees maintenance. Villagers have their main occupations, such as tourism agency employees or nurses and do not have much time to assist with the maintenance. Finally, the income earned from Hanamomo Festival is insufficient. Money earned is used to pay the parking lot workers and the remainder is used to finance the maintenance cost to buy fertilizers and pay workers for cutting the grass. Local people who engage in the management of the Hanamomo Festival predominantly conduct on a voluntary basis making the responsibility a financial liability.

**Photo 2 *Koyo* (Colorful Mountain)**



(photo is taken by Irene Santi Br Bukit)

**Photo 3 *Ajisai* (Hydrangea lower)**



(Source: Webpage of Hotel *Gessen*)



### 3-4. Solutions

Possible solutions to the problems mentioned are:

#### 3-4-1. Early Blossom Schedule and Internet Utilization

Exact blossom period changes yearly. However, modern progress in technology enables tourists to be informed about these changes and methods in informing visitors should be improved. Tozawa community predominantly provides tourist information through pamphlet distribution. The visitors should be informed immediately allowing them to properly plan their holidays; this can be conducted effectively if the website address of Achi Village is included in the pamphlets. With a notice to visit the website on the pamphlet and direct homepage access visitors can be notified about blooming times immediately. Achi Village can further utilize the website to provide other information such as the specific characteristic of tourism's locations and other facilities.

#### 3-4-2. Lack of Participation in Hanamomo Festival

Lack of Participation in Hanamomo Festival occurs as the income earned from Hanamomo Festival is insufficient to satisfy community members compared to the time and work invested in participating in the festival. The management of Hanamomo Festival is recommended to hold a meeting to solve this issue. Tozawa could conduct the Hanamomo Festival as a business in which the goal is making a profit. This topic is discussed further in section five.

#### 3-4-3. High Cost of Advertising

One of the most prominent methods of advertising today is internet promotion. Costs are relatively low, access is fast and easy by people around the world. Achi Village has a website and they can utilize it to promote tourism in an interesting manner. They can also present photos of scenery from Achi Village and Tozawa community.

## 4. COLLABORATION BETWEEN FORESTRY AND TOURISM

### 4-1 Attempts Made

After review of forestry and tourism in Tozawa community, collaboration between the two industries is as follows. Community residents invite tourists to recreation facilities in the forest areas where they consume forest products. In exchange for this the visitors pay a tour cost.

#### 4-1-1 Participatory and Experience-based Tours in Forests

A good example of the synergy between forestry and tourism is a participatory and experience-based tour in forest areas. Achi Village office declared its desire to plan more programs of experience-based tourism in its fifth

General Development Plan. They include harvesting of apples, blueberries and strawberries as well as the gathering of edible wild plants. Local associations are responsible for putting these plans into action.

Han-i Forest Owners' Association actively provides visitors with participatory tour programs. These include crafting of bird houses, building *kadomatsu* (gates with pine branches) and gathering of beetles as well as mushrooms. Each program can attract about seventy visitors and the number of participants is steadily increasing. What is interesting is that the association started such tour programs three years ago in order to maintain *Satoyama*, the border zone or area between mountains and fields, not through the General Development Plan.

In Chisato Nishi district to which Tozawa community belongs, residents offer a variety of experience-based tour programs. For example they have organized a wood working club. Visitors make chairs, tables and similar wooden items of timber which are produced in Achi village.

Tozawa community provides a kind of participatory tour program in forest areas with employees of companies and their families. This program is called *Mori no Satooya Sokushin Seido* (Forest Supporter System) operated by the Nagano Prefectural Office (Nagano Prefectural Office, Webpage). Under this system, the prefectural office intermediates between a certain company which offers a contribution to forest preservation and a community which seeks assistance. After concluding a contract, the latter opens its forest as a spot of recreation for employees of the company and their families. In exchange, the company contributes money to the community in order to maintain forest. In June 2009 Tozawa community concluded a contract which will last for five years with *Toyo Exterior Inc.* (*Orient Exterior Inc.*). The company chose Tozawa among three candidate communities recommended by Nagano Prefectural Office as its residents demonstrated great interest in preserving its forests and the community has superior transportation and a natural environment suitable for recreation. The contract specified a thirteen hectare forest in Tozawa community and it allows employees of *Toyo Exterior Inc.* to enjoy recreation in the forest area. In exchange the company contributes five hundred thousand yen per year for forest maintenance. In June 2009 company employees and their families enjoyed chopping branches, cutting trees, breaking paths through the trees, strolling in the forest, producing charcoal and catching fish (*Toyo Exterior Inc.*, Webpage and *Minami Shinsyu Shinbun* 7 June 2009).

#### 4-1-2 Entire Village Museum

Achi Village office has begun an initiative which is likely to encourage participatory and experience-based tours in forest areas. This concept is called the "*Zenson Hakubutukan* (entire village museum)". In the fifth General Development Plan, this plan is one of five pillars in achieving its goal that it becomes a sustainable village to enhance the quality of life of its residents. Its holistic approach is likely to promote experience-based tours in not only residential areas but also forested regions of the village.

Originally, "entire village museum" was initiated by a resident in Komaba community which is near to Tozawa when a resident attempted to make his community more competitive. The village had been often referred to in many pieces of literature including *Genji Monogatari* (Tales of Genji) as it was known for its hotels since the Nara era. In order to utilize this history, the resident aimed at turning his home community in its entirety into a museum.

Achi Village improved on this concept. Its officers invited Professor Shuzo Ishimori from the National

Museum of Ethnology in Osaka to visit and evaluate the community. After he recommended Achi to change itself into an eco-museum the mayor named the eco-museum an “entire village museum” and organized a committee to implement the initiative. In response to the issuance of a report of the committee in 2007 (*Tosando Kamisaka Sogo Kenkyujyo*, [2007]), this concept was included in its fifth General Development Plan.

An entire village museum is defined as that in which residences, scenery, history, traditions, nature, ruins and all other elements in the village are preserved, studied and exhibited. In the museum both tourists and villagers can learn more about Achi Village and feel a stronger attachment to the community. This approach is all inclusive even with respects to food, souvenirs, accommodations and information.

Establishment of an entire village museum has only begun in Achi Village. First, the village office appointed an officer in charge of the museum who is called a “curator.” He considers how to (1) relate its elements in an interesting way; (2) coordinate its staff; (3) advertise outside of the village; (4) preserve cultural heritage and scenery from a legal perspective and (5) coordinate with travel agencies. The museum was temporarily realized in the summer 2009 with coordination from the village office. Although residents made efforts to preserve and exhibit their landscape and traditions in their community, their movements were not organized. Even their leaders did not know what others were doing in other communities. The village office provided them with an opportunity to learn about their movements in communities. In February 2009, nine groups made presentations on their learning in each community. After presentations, they decided to hold tours simultaneously in six districts including Ohchi, Goka, Chisato Higashi, Chisato Nishi, Namiai, and Seinaichi over the following summer. In all six tours, local people proposed their tour program and guided visitors.

Such an entire village museum in Achi includes the Hanamomo Festival in Tozawa community. As the curator pointed out, that museum can utilize other elements in the program to augment other tourism efforts. The museum can encourage its residents to provide more activities for tourists including pruning trees, creating forest paths or producing charcoal as this compliments the entire village museum concept.

## 4-2 Problems and Limitations

Complicated ownership of forest adversely affects participatory and experienced-based tours. Although the Han-i Forest Owners’ Association borrows a hundred-sixty hectares of forest and conducts mushroom gathering there, it cannot continue into the harvest fall season due to land ownership issues.

Many people in Tozawa community do not engage in participatory tours. One interviewee complained that its residents did not take part in a wood working club voluntarily. Involuntary participation to the club cannot attract tourists.

Such tours themselves have limitations. They cannot solve all problems in mountainous areas even though residents tend to expect the tours to be perfect solutions. For example, a survey conducted by the Ministry of Internal Affairs and Communications shows that eighty percent of interviewed municipalities answered that such tours did not lead to an increase in settlement to their communities (Nakane [2004]). Such tours rarely provide high income for people engaging in them, especially in the beginning stages. After they receive good evaluations and bring tourists repeatedly, they can begin producing a cash flow. Second, such tours must be unique to the

Tozawa community in order to set the region apart from municipalities that have already implemented similar projects. To train guides who can attract visitors regularly is also important. Finally, if residents engage in such tours, they must recognize strict obligation of contracts with tourists as Japanese law protects consumers strongly from service providers. If a travel agency cannot conform to the content of its tour pamphlet then it is in violation of contract.

Residents of Tozawa have not yet fully recognize the concept of the entire village museum. Only two interviewees among seven in the community were aware of it. To make matters worse no one could describe it satisfactorily. Unless residents understand it, they cannot utilize it.

## **5. SUGGESTIONS**

The working group investigated the condition of Achi Village and Tozawa community, directly interviewed residents and observed the region through the medium of the Domestic Field Work program. For the betterment of the community, it proposes suggestions based on the problems found in the field.

### **5-1. Suggestions Regarding the Problem of Natural Disasters**

After interviews with experienced residents in Tozawa, the historical perspective of continuous natural disasters that affected the area was explained in detail. Learning from these experiences, the government and residents have built embankments in mountainous areas to prevent landslides and large soil levees on river banks to prevent floods. Planting trees along the river side, such as hanamono trees, is also one of the methods that help land maintain its durability to battle natural disasters. To make this effort effective and sustainable, the research group suggests that through support from the central government, local government and residents, a water conservation dam be built to prevent flooding. In addition, the history of fighting natural disasters in Tozawa community can be utilized as an exhibition in the entire village museum. In this way, the use of the entire village museum concept includes the history of local people. For example, the pictures and documents of previous floods that have damaged Tozawa can be one of the sources to explain to visitors why the river embankments are as they are.

### **5-2. Suggestions Regarding Difficulties in Earning Income from Forestry**

In order to increase the income from forestry, some possible suggestions are to ask for support from central and local governments, minimize production costs, diversify forestry products and promote correlating events between tourism and forestry.

The government's support of protecting local timber prices to compete with that of import material is crucial. Promotion to increase the national demand of Japan's timber can significantly benefit the forest owners and workers. Starting at the village level, local government can help to encourage building houses from timber that is

harvested from the village. In relation to promoting the entire village museum, residents would then be proud to discuss how their houses are built by using their own timber.

Following from the above suggestion, attempts to minimize production costs should be implemented repeatedly by local government's support in building small paths to facilitate access to the forests. Forest roads would enable people to access and sell more forest products to market. This effort has been supported by local people by making forest maps. Forests in Achi Village are so vast that forest owners have difficulties in defining exact borders and this problem persists in Tozawa. To solve this issue, forest owners have made maps to designate the borders for forest ownership and as a guide for those who visit the wooded areas. This cooperation between local government and forest owners is expected to improve the functionality of the forested area.

Diversifying forest products beyond timber should be seriously considered as the price of the product continuously declines due to strong competition with imported materials. Planting mushrooms in forested areas is one creative way to overcome this situation. Without changing the shape of the forest people can utilize the natural beauty of forested areas in Achi and with some additional efforts they can increase the effective harvest of these regions.

The last but the most powerful suggestion is to create promotion of correlating events between tourism and forestry. Residents can invite visitors by promoting "experience-based tourism" in forests, for example, mushroom picking tourism excursions, birdhouse creating, and charcoal producing. These activities do not necessarily need to be conducted in one certain area of the village through the concept of the "entire village museum" and residents in the village could be welcomed to participate. This concept enables Achi Village to be comprehensively explored, villagers to work together and attract more visitors. According to the curator of the "entire village museum," full participation of local residents and support from outside Achi Village are necessary. He noted that having a discussion forum as an opportunity to exchange opinions and invent new ideas for villagers is important as well as making them understand how to realize this concept.

If this activity works well, other forest sponsors such as travel guides and timber companies would potentially join the program and succeed their efforts. By the time this success is reached, income generation is only one of positive points from which the community can benefit.

### **5-3. Suggestions Problems Related to the Hanamomo Festival**

It is commonly known that the Hanamomo Festival does not contribute significantly towards income generation in Achi Village. To increase profits from the festival, the research group proposes a charge of one hundred yen for each visitor. This surcharge will produce an approximate income of twenty million yen as Hanamomo Festival has two hundred thousand visitors per year. To attract more visitors and actively involve local residents, staff should sell goods and souvenirs. The sales people should include not only residents in Tozawa community but also members of Achi Village. Companies and individuals should also be urged to create new and unique souvenirs that represent local culture.

Along with efforts to attract larger numbers of tourists, participants from outside the village, such as high school or university student volunteer clubs, should be involved in managing the festival or cutting grass around

Hanamomo trees twice a year in the spring and fall. Not only widening the event support base but also lower management cost would be result through these efforts.

#### **5-4. Suggestions Regarding the Lack of Expenditure from Tourists in Achi Village**

To promote more tourist spending money in Achi Village, hotels should create some innovations to attract visitors to stay for a longer period of time. When the DFW presentation was held in front of residents of Achi Village to report research findings and suggestions, participants presented less than positive ideas regarding how tourists avoid staying in hotels and how they spend less time and money in Achi Village. For example, photographers often come to an ideal location that they consider a good spot to take pictures late at night, then spend the time inside their car until morning and buy meals at a convenience store. The following day they take photos in the early day and return home after that. In order to solve these problems, the group suggests hotels to hold night entertainment such as traditional plays or performances. Other possibilities are for the community to hold photo competitions or providing package tours to a variety of tourist spots.

Minami Shinshuu (a south area in Nagano prefecture) has already held such a photo competition. However the working group suggests some alternate ideas. First, as this photo contest covers entire Minami Shinshuu area, the group proposes a photo contest of Achi Village only to create a competition with a sharper focus. Second, as the photo contest calls for pictures to be submitted in a conventional method, it is proposed that the pictures be submitted in both print version and digital form. Third, the group proposes that the pictures be submitted by both mail and email. Further, the pictures that come out as the winner of the competition should be effectively used by Achi Village for promoting forestry and tourism. The pictures can be used for posters, blog entries, or on websites to introduce Achi to more potential visitors, not only in Japan but also in other countries. In addition, a PDF guidebook should be created with pictures of the beautiful scenery and maps that indicate places where pictures were taken. Material that can be downloaded from internet and easily printed out such as promotion pamphlets are innovative methods of promotion and will save on printing costs. Through these efforts, photographers will be able to discover the most attractive sites for future visits. Furthermore, pictures can be printed out as postcards that can be freely distributed for new visitors and later sold as souvenirs. The theme of pictures of photo contests should be morning or night in Achi Village in order to coax participants to stay overnight and spend more in it. There is also a good example in Goka Community when local residents can guide photographers from outside the community to good locations for photos and then receive guidance fees from them.

#### **5-5. Suggestions Regarding Decreased Popularity of Achi Village for Visitors**

Visiting hot springs is extremely popular amongst Japanese tourists. Visitors from Korea and China are also becoming familiar with this cultural aspect and in travels to Japan tours will increasingly include stays at hot springs. Unfortunately, Hirugami hot spring is not an internationally renowned Japanese hot spring location. For those that do know about Hirugami hot spring, not many know that the village has the Hanamomo Festival, magnificent scenery of colored leaves in fall or the delicious and natural organic vegetables and fruits sold at the

morning market. Thus, the working group proposes that Achi Village advertizes itself to a wider range of potential visitors so that the village can attract a greater number of tourists. Promotion through the internet is one of the least expensive ways yet it provides a huge amount of information for a wide audience. The photo competition and other promotional events in Achi Village would be well maintained through its official website so that tourists can find it and the Hirugami hot spring could attract greater interest in the same manner.

To receive superior impact from tourism and forestry promotion, the research group suggests that any information regarding Achi Village should also be available in English. Suggestions regarding promotion of websites, photo competitions, tourism pamphlets and posters will attract more attention if provided in both Japanese and English. Through these methods, the village can attract tourism not only from those who understand Japanese, but also the international community.

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## 第 2 章

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# Sustainable Agriculture in Achi Village

和文要約

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## 阿智村における持続的農業について

### <要約>

現在、日本において、GDP に占める農業の割合は 0.9%（2006 農林水産省）であり、カロリーベースの日本の自給率は約 40%である（2007 農林水産省）。こうした自給率の低さといった問題や農村部における高齢化の問題等、日本では農業分野の問題が山積している。今回、調査を行った阿智村は、長野県南部に位置している。人口の 18.4%が第一次産業に従事し、阿智村では「阿智村第 5 次総合計画」において、農業を基幹産業と位置付けている。しかし、阿智村も例外なく農家の後継者不足、その要因の一つである収入の低さといった困難に直面している。

そこで、今回の国内実地調査では、阿智村における持続的農業の意味を探ることを目的とし、農家の後継者不足と収入の低さに焦点を当てた。新規就農者、農家、阿智村役場、アンテナショップ、農産物加工品会社、営農支援センターの方にインタビューを行い、阿智村における農業に関する現状、それに向けての努力等を伺い、阿智村における持続的農業の意味について検討を行った。

### I. 後継者不足に関して

現状：上述の通り、阿智村役場では農業を阿智村の基幹産業と位置付け、新規就農者呼び込みや、阿智村への移住者の獲得に向けて様々な努力をしている。しかし、農業従事者の高齢化と後継者不足は依然として、大きな課題である。

この問題に関しては、インタビューを引き受けてくださった方に実情を伺う等して、以下の提案を試みたい。

### <提言>

#### 1) 若者のネットワークを通じた広報の強化

具体的には、大学での就職活動イベントへの出展、農家を志望している青年海外協力隊への広報、日本農業協会が実施している農業インターシップへの参加等が挙げられる。全体の農業への新規就農者に向けての広報はもちろんのこと、畜産農家の後継者の育成も重要である。阿智村の農業の特色の一つは、「あち有機いきいき」という有機肥料を使った有機栽培にあるため、堆肥センターを、牛糞の提供により、支えている畜産農家は3戸のみであるからである。

#### 2) 後継者の関心の喚起

これまでの後継者問題では、新規就農者の呼び込みに力を入れてきたように思われるが、阿智村の人が、定年後に農業をすることも、後継者不足を解消するには、重要である。こうした阿智の農業の後継者となりうる方への意識向上の活動や帰農の推進も重要である。

### 3) 外国人研修員や研修生、留学生などの受け入れ

日本の農業技術は世界でもトップレベルにあり、その農業技術を体験することは、人口の大部分が農業に携わっている途上国の研修員や留学生にとって、非常に有意義である。短期の滞在は農業の後継者不足の根本的な解決にはならないかもしれないが、そうした阿智村での短期滞在の経験が、新たなネットワークの構築や長期滞在へと繋がり、阿智村農業の活性化につながる可能性は十分に考えられる。

## II. 農家の所得向上に関して

現状：日本において、農業は利益率の高い職業ではなく、この特徴に加え、日本では輸入農産物の価格の安さに押され、国内農家の所得は減少している。こうした動きに歯止めをかけるべく、農産物への付加価値をつける食品加工、有機栽培等、阿智村においても、様々な努力がなれている。有機農業に取り組んでいる新規就農者、食品加工会社の関係者などにインタビューを行い、それらの内容をもとに、以下の提案を試みたい。

### <提言>

#### 1) 有機野菜の広報

大都市圏での有機栽培の広報、例えば、スーパーで、農産物に関する情報を記載した紙を置くといった広報が必要であると考え。たとえ大都市圏で流通を確保したとしても、他の国産農産物や輸入農産物がライバルであり、また大部分の消費者の購入基準は、価格である場合が多いため、価格だけではない、安全性や環境への負荷が少ないといった、価格以外のメリットについて、周知する必要がある。よって、消費者への有機野菜に関する広報がより必要であると考え。

#### 2) 阿智村特産品詰め合わせの「お土産BOX」の開発

伍和地区では毎年フォトコンテストが開催されている。しかし、参加者はカメラ等の荷物で、あまり阿智のお土産を買わない傾向にある。そこで、旬の農産物や加工品を詰めた「お土産BOX」を提案したい。これは、参加者が阿智で申し込みさえすれば、自宅に「お土産BOX」が届くものである。農家の方の新たな所得創出源となりうると考えられる。

#### 3) 作物ごとの農家グループの結成

阿智村のきゅうり農家の方は組織を結成し、JAより高い価格での農産物の販売に成功している。他の作物でも、こうした農家の方の集まりを結成することにより、農家のグループ活動を通して、阿智の農産物を販売する代替方法が生まれるのではないかと考える。

## III. 結論

阿智村における持続的農業とは、環境、社会、経済、この3側面でバランスが取れていることである。後継者がいなければ、農業は持続できず、所得が低ければ、後継者は増えず、既存の農家が農業

を続けていくことも難しい。また、環境に負荷の大きい農業手法だと、農業の土台である土壌の維持ができない。それぞれの問題は密接に関連している。この3点のバランスをいかにとっていくのか。これが阿智村の持続的農業を考える上で、重要である。

もっとも大切なことは、阿智村内におけるコミュニケーションである。今回の国内実地調査において、様々な立場から農業に関わる方にお会いした。中には意見の近い方々もいらしかった。そういった方々が意見交換をする場があれば、また一つ阿智の農業の活性化に向けて、動き始めていくことが出来るのではないだろうか。こういった考えから、私たちは、阿智村内でのコミュニケーションの活性化の重要性を強調したい。

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国内実地調査の実施に際し、阿智村役場の方を始め、インタビューを引き受けてくださった方、多くの方にご協力頂きました。このレポートに関しましては、至らない点は多々ございますが、私どもにとりましては、阿智村への滞在は、大変貴重な体験となりました。ここに深く御礼申し上げます。

## 1. INTRODUCTION

Food security around the world is currently a significant issue. The world population continues to grow and there is concern about food sufficiency to keep up with the increasing number of people. Maintaining food security through agricultural sector is on the minds of governments in all nations. In Japan, the amount that agriculture represents in the GDP is only 0.9% (Ministry of Agriculture, Forestry and Fisheries; MAFF, 2006) and Japanese self sufficiency is at only 40% (MAFF, 2007). This means that the contribution of agriculture to the economy is quite low and Japan depends on imported food from overseas. Another result is that Japan faces a severe food security problem.

Sustainability in agriculture is a prominent issue in Japan. Economic viability in agriculture is significant in order to sustain farmer's livelihoods and be competitive in the international market. At the same time production methods should be safe for the environment in order to be sustainable in the future. Healthy and safe agriculture products also are a concern for Japanese consumers. Japanese farmers should deal with this increasing awareness.

However, there are problems like the aging of society and the decreasing number of people who engage in agriculture especially in the rural areas of Japan. The number of new farmers has been shrinking since 2004. At 53.9% more than half of all farmers in Japan are over 60 years old and only 15.0% of them are less than 39 years old (MAFF, 2009).

The Japanese populace has a strong desire to increase the level of food sufficiency. This goal should be targeted not only in short-range but also through consideration of sustainable agriculture in the future. It is necessary to encourage efficient and stable farm management for sustainable development in agriculture (MAFF, 2009)

## 2. RESEARCH ON SUSTAINABLE AGRICULTURE IN ACHI VILLAGE

### 2-1. Background of Research

There are many problems related development process that can be studied in many textbooks and lectures in the Graduate School of International Development (GSID) at Nagoya University. This knowledge is important as basic knowledge to develop nations. Additionally, having direct experience through the Domestic Field Work (DFW) program in rural areas of Japan is also a valuable experience. This fieldwork can augment the learning process to identify problems, analyze it, and find alternative solutions to deal with these issues. DFW provides opportunities to enhance understanding beyond the theoretical aspects of development; there are practical issues that should be analyzed case by case.

Agriculture has an important role in the Achi Village economy although the number of people engaged in this sector is not large when compared to other sectors. Income generation from agriculture is also not high. Agriculture is important for maintaining food sufficiency and to secure food availability. Agriculture

cannot be separated from the daily life of residents in Achi village because of culture, social welfare, and geographical conditions.

Sustainable agriculture is an important concept for rural development. In order to be sustainable, agriculture needs to be economically viable, stable and socially acceptable. Through this research, agricultural sustainability in the Achi village will be observed. Possible suggestions will be provided from the research group for improvement of the agricultural system in Achi village to be sustainable in the future.

## **2-2. Research Objectives**

Objectives of the research are:

1. To obtain information and gain a clear understanding regarding current agricultural conditions in Achi Village.
2. To identify current problems of sustainable agriculture in the Achi village.
3. To provide possible suggestions regarding sustainable agriculture in Achi village.
4. To explore the meaning of sustainable agriculture in Achi Village.

## **2-3. Research Questions**

Research Questions for the study are:

1. What is the economic, social and environmental state of agricultural sustainability in Achi village?
2. What is the meaning of sustainable agriculture in Achi village?
3. What should be improved in Achi village to make agriculture more sustainable?

## **2-4. Hypotheses**

Research hypotheses for the study are:

1. Agriculture in Achi village is not sustainable in the long term especially from an economic and social perspective. However, agricultural production has been considered an environmental issue for future.
2. Government support and income for farmers needs to be increased to maintain current agricultural production and increase it to ensure agricultural sustainability in Achi village. The awareness of safe environmental farming also should be promoted to farmers.

## **2-5. Research Methodology**

This research has been conducted by the agriculture working group of the DFW program. The research group used observation in the field and practical experience from farmers and other persons who were related to study objectives as research subjects. This empirical analysis is to research sustainable agriculture in Achi village. Suggestion for improvement is provided based on the group's analysis.



The working group conducted research, literature reviews, interviews and direct observation in the field. Relevant literature was reviewed to obtain general information regarding agriculture problems in Japan and gain basic data about agriculture in Achi village. The research group interviewed subjects who were related to the agriculture sector directly or indirectly. The group also visited several locations to obtain a clear understanding of the condition of agriculture in Achi village.

## 2-6. Itinerary of our visit

Time/Date	28 October 2009	29 October 2009	30 October 2009
06:00			
07:00		Hirugami Hot Spring Morning Market	
08:00			
09:00			
10:00		Chisato Higashi Agricultural Association	Farmers
11:00	Municipal Office		
12:00			
13:00	Municipal Office Department of Promotion of Settlement and Development	Agricultural Support Center, Fertilizer Center, Seminar on Invention of New Food Supplement	Yasaimura Achi Parking Area
14:00			
15:00			Closing Ceremony
16:00	New Farmer		

## 3. AGRICULTURE IN ACHI VILLAGE

### 3-1. General Information about Agriculture in Achi

The municipal office of Achi village has set out agriculture as the main industry of Achi in their Fifth Comprehensive Plan from 2008 to 2017 and has been actively promoting this sector. People who engaged in agriculture in Achi village are only 18.3% of the population (Municipal Office, 2005). Agriculture is important because of culture, social welfare and geographical condition.

The main agricultural product in the village is cucumber (夏秋きゅうり). The Agriculture Support Center and Organic Farming Promotion Association make regular shipments bound for supermarkets in Nagoya. Another predominant agricultural product is persimmon (市田柿). Farmers who cultivate persimmon process them by drying the fruits. Minami Shinshu Farm Product Market Shop offers tours for people to observe the process of drying persimmon.

There are several food-processing companies in Achi village. These companies also play an important role towards income generation for farmers. There are tourism resources such as hot springs, beautiful sight-seeing among other destinations and owing to this factor the target market is not only local resident but also the tourist.

## **3-2. Characteristics of Locations through Interviews and Observation**

### **3-2-1. Achi village Municipal Office (阿智村役場)**

Achi village faces an aging population. In the 60 communities that make up Achi village, over 40 percent of the population is greater than 65 years old. Additionally, there are 13 communities which over 50% of its population are more than 65 years in age. Achi village has accommodated vacant houses for migrants from outside Achi village since 2008. There are 15 vacant houses and 10 houses that have already been contracted. Most immigrants who want to live in the area are from Nagoya city. In Achi village, support systems are in place for schools and child care facilities such as a school lunch program and free medical care for students up to the junior high school level. On the other hand, it is difficult for immigrants to find work in Achi village. Most immigrants found employment at the hot spring, forestry industry and companies in Iida city. There are support systems for high school graduate to become employees at local companies.

Recently, 60 farmers have retired in the village. This situation has caused the number of farmers to decrease drastically. However, there were 20 new young farmers from Kyushu and Saitama Prefecture who have started farming in Achi village. Some of them decided to farm in the village due to the organic style farming in which Achi village has been promoting as a distinction from other villages. The Municipal Office attempts to promote more people to be farmers by providing support that includes the financial and social facilities. The Municipal Office offers loan without interest to new farmer who would like to stay at least 3 years for up to one hundred thousand yen per month. However, the Achi village Municipal Office needs to promote more effort to encourage new farmers to move into the area.

### **3-2-2. Organic Agriculture Farming**

Organic farming is a technique in agriculture which minimizes the usage of non-organic fertilizer and pesticides. Mr. Kosaka is a farmer in organic agriculture. He has only started farming two years ago however, he knows the situation in Achi village well since he was born in the village. His decision to partake in farming is related to his previous background. He was a Japan International Cooperation Agency (JICA) volunteer and member of the Japanese Overseas Cooperation Volunteers (JOCV) for two years. In addition, he worked as an agricultural instructor for 10 years for the Organization for Industrial, Spiritual and Cultural Advancement-International (OISCA). This is an organization of Non-Government Organizations (NGOs) which attempts to

contribute to humanity's environmental sustainable development through a holistic approach. It emphasizes the interconnectedness of agriculture, ecological integrity, and the human spirit.

To increase his practical knowledge, he attended some organic farm training classes in Achi village and in other cities of Nagano Prefecture. He knows good techniques, has know-how, possesses skills and other knowledge required in operating organic farming through the training. When Mr. Kosaka had problems, he asked someone who is experienced in organic farming or discusses the issue with other members of community of organic agriculture farmers.

One problem in organic farming is marketing. Organic agriculture farmers should attend annual meeting and make a commitment to sell some amount of product that can be produced for the following year. They should also report the condition of their organic farming on a monthly basis. If the crops are more than the farmer agreed to grow, the farmer needs to search for his own market to sell products. Organic agriculture products cannot be sold freely in the same way as non-organic agriculture products.

### 3-2-3. Morning Market

The morning market was established in 1981 in Achi village and has been managed by Chisato-Higashi Agricultural Association. This market is important for farmers to earn much needed cash. The morning market usually begins operating in the early morning, and is in operation every day the whole year round. The morning market usually starts at around 5.00 AM when sellers bring fresh produce to the market and make preparation to sell it.

Sellers determine best price for their produce which is higher than if they sell it through distributors. The morning market is located near a hotel which has a hot spring facility making it an effective marketing location. There are different kinds of stalls, and not all of sellers are farmers. Non-farmer sellers gather fruit and vegetables from farmers who cannot sell products directly in the morning market.

### 3-2-4. Yasaimura (やさい村) Shop

Picture 3.1 Yasaimura Shop



The Yasaimura shop opened in 2008 and is located in rest area of Achi on the Chuo expressway. The store is open-air, consisting of two tents and is managed by the Agriculture Support Center. Farmers could sell their product at a higher price to the center than to other distributors such as the Japan Agriculture Cooperation (JA). JA is the largest agriculture related company in Japan; supporting farmers by purchasing their crops and distribute them to various markets throughout Japan. The reason is that the products are sold directly to the customer. The center collects and buys fruits and vegetable from farmers and employs sales staff. If the products in this store are sold out, the staff can request farmer to harvest and deliver the product at that time.

This Support Center attempted to assist farmers by opening this new market in which the main customers are people from outside of Achi village who stop for a break in the rest area. Some popular agriculture product of Achi such as apple and persimmon are sold in the Yasaimura store. One issue, however, is quality control since

the store is open-air and the products are exposed to direct sunlight. The sunlight reduces the freshness of fruit and vegetables resulting in lower interest from potential buyers.

### **3-2-5. Agricultural Support Center**

The Agricultural Support Center is an institution under the Municipal Office and its main purpose is to assist farmers in Achi village. The primary objectives of the Agricultural Support Center are to promote agricultural activities such as; (1) support techniques, as a consultant for farmers; (2) to promote organic agriculture products by giving certificates and (3) to support basic management methods for performing organic farming.

The Agricultural Support Center issued an agreement dealing with organic agricultural products in February 2005. Organic farming requires the use of organic fertilizer in order to produce safe and healthy products while protecting the environment. The support center encourages farmers to cultivate using organic farming systems and promotes them to create an association which is called the Organic Farming Association. The Association functions (1) to support farmers in the construction of a fertilizer center; (2) to research and improve techniques of organic farming and verify soil conditions; (3) introduce farmers to practice organic farming and (4) promote production safety that creates healthy organic agricultural products and surveys potential markets.

### **3-2-6. Chisato-Higashi Agricultural Association**

The Chisato-Higashi Agricultural Association was originally started by 3 businessmen in 1985. By October 2009, membership in the group had increased to 40 people. This association organizes the morning market to facilitate local farmers and tourists in certain locations such as the hot spring hotel facility. The number of sellers at the morning market has been increasing therefore the association needs additional funds to build a new morning market location to optimize tourism potential.

However, one difficulty is that demand for agricultural produce, especially processed food is decreasing. Another issue is the lack of food processing technology. The association attempts to explore the originality of Achi village in order to develop a strong brand identity. Additionally, the association makes effort to open or supply shops directly outside Achi village such as in Nagoya and Iida City.

The association has 26 full-time staff and 14 part-time staff however the organization wants to further develop human resources through training. The most important skill needed is an understanding of food processing technology, factory maintenance and management.

**Picture 3.2 Fertilizer Center**

### **3-2-7. Fertilizer Center**

The Fertilizer Center is a factory that produces compost to support organic farming in Achi. The compost named “Achi Yuki Ikiiki” is mainly processed from both milk and beef cow feces which are fed by livestock farmers. The fertilizer is organized by members of the Organic Farming Promotion Association and managed by cattle farmers as voluntary staff. The association consisted of 580 farmers of both crop land and livestock at the end of October 2009. The feces from cattle of livestock farmers are collected daily and sent to the fertilizer

center to be processed. The feces then is combined with sawdust, intermixed several times over 30 days and fermented for the following 70 days. Every year 700 two-ton truckloads of compost are produced and sold at 10,000 yen per two-ton truck for members. Achi village is well known through agriculture production and has its own Achi brand certificate. This certificate can be seen in every package of agriculture products produced in Achi. The agriculture farmers who want to apply for the Achi-brand certificate must use “Achi Yuki Ikiiki” compost.

Demand for the compost is increasing but the fertilizer center cannot provide for all of the demand from Achi village members. One restriction is the number of livestock owned by farmers who are supplying raw material. By October 2009, there were 11 livestock farms consisting of 5 milk cow farmers and 6 meat cow farmers. The number of farmers is potentially decreasing due to livestock farming being unprofitable.

### **3-2-8. Farmers**

The working group had an opportunity to interview two farmers who have been producing agricultural products for several years. One of them was producing fruits and vegetables and the other was producing milk, meat, milk products and the like. According to the opinions of the two farmers, Japanese agriculture has been declining yearly. The main reason is the low level of income. Younger people do not want to live in rural areas. They are moving to urban areas and as a result, the numbers of farmers are decreasing. Moreover, the world financial crisis in 2007 has also negatively impacted the agriculture industry. Farmers today need government support to increase or at least to maintain the level of agriculture production.

## **4. RESEARCH FINDINGS AND SUGGESTIONS**

### **4-1. Decreasing Number of Farmers**

#### **4-1-1. Current Conditions**

In Achi village the agricultural sector is regarded as a fundamental industry, municipal officers attempt to be active in promoting the agriculture sector of Achi village. However, as with many rural regions in Japan Achi

suffers similar problems such as aging of society and the lack of successors for farm owners. It is extremely important to the concerned sectors to solve these issues.

The progressive liberalization of imports is making it increasingly difficult for livestock farming to survive in Achi village. If all livestock farms disappear, farmers will not be able to manage the organic fertilizer center and organic products will be forced to make drastic changes. This potentially can cause the weakening of agriculture in Achi village and the cooperative which manages food processing.

#### 4-1-2. Achi Resident's Efforts

As mentioned previously the main problem of agricultural sector in Achi village is to lack of farmers. Thus, the local government has made efforts to solve this problem by setting up support systems to increase the numbers of farmers in Achi village such as by creating the support system for immigrants. Other concepts are organic fertilizer production. Improving farming management also be conducted in order to attract people living inside Achi village and to attract interest from potential new farmers from outside the village.

### 4-2. Low Income of Farmers

#### 4-2-1. Current Conditions

The fact that farming is less profitable due to the cost of agriculture products fluctuates depending on the season and economic circumstance. Farmer's incomes are further threatened by the import of agricultural products with prices that are often cheaper than their Japanese counterparts thus reducing the demand for agricultural products from Japan. As mentioned previously Japanese agricultural products can support only 40 % of national consumption demands. This has particularly affected the livestock farmer and is the reason that farming is not so attractive in terms of income. In Achi village too, farmers have income difficulties and according to interviewees income is low. 5 million yen is sufficient for one year for an average household but as can be seen in figure 4.2 income has significantly dipped below this level. Due to low incomes the younger generation does not want to become farmers and the number of farmers has steadily decreased.

**Table 4.1 Gross Production of Agriculture (in 100 Million Yen)**

Year	Crop	Husbandry	Others	Total
1990	911	416	31	1358
1994	911	355	33	1299
2000	760	250	50	1060
2005	640	260	40	940

Table 4.1 shows how agricultural production has decreased from 1990 to 2005. As can be seen in the table, the total gross production in agriculture has decreased from 1358 million yen in year 1990 to 1299, 1060 and 940 million yen in years 1994, 2000 and 2005 respectively. However, the reduction in income from 2000 to 2005 is

not as sharp of a decrease as in previous years but it has not stopped. In the next table we can see how income from agriculture is also decreasing.

**Table 4.2 Income from Agricultural Production**

Year	Income of Achi from Agriculture (in million yen)	Income per household (in thousand yen)
1994	530	647
2000	350	498
2004	310	438

Table 4.2 demonstrates the trend of decreasing incomes of farmers. This is complimented by low productivity of farmers as their average age becomes older. Another reason for decreasing incomes is the tendency of prices for agricultural products to decline due to imports from abroad. This situation leads farming become a less attractive source of income in Japan.

#### **4-2-2. Efforts of Residents in Achi**

Residents of Achi have been trying to increase farmer's income through continuous efforts. A number of associations have started up to assist in the cause such as the Chisato-Higashi Agricultural Association and the Agricultural Support Center which support the distribution of agriculture products directly to customers. From an economic perspective these things may be considered insignificant however from the perspective of members of Achi village these attempts make a significant difference.

##### **4-2-2-1. Opening Markets**

Through the efforts of residents in Achi there has been improved distribution of agricultural products. This is to increase incomes by creating new markets such as the morning market and direct shops which deliver the agriculture products directly from producers. They also produce processed food to raise farmer's profits.

At the morning market farmers sell different types of fruits, vegetables and processed foods. The profit from the market is relatively high compared to produce distribution through JA, however, selling capacity at this market is limited. Moreover, farmers can only sell by around 10% of their total produce at the morning market so consequently farmers are not fully satisfied by selling here.

Another market is the Rakku Achi Coop which is a local supermarket selling agricultural produce and is the common store for residents. Farmers sell organic vegetables grown with organic fertilizer. The products here have the name of each farmer on it so the market plays two important roles: it provides an opportunity for customers to purchase organic vegetables easily and it is opening a new source for selling organic products.

##### **4-2-2-2. Organic Farming**

Organic farming is a new form of agriculture for Achi village. Some farmers have begun farming organic products in Achi village however it can be challenging to cultivate organically. It needs special knowledge and

training and technically, organic cultivation methods are more time consuming when comparing to non-organic agriculture production. Selling organic products also in more difficult due to the high prices and this makes organic agriculture production unattractive to farmers.

Support for organic farming comes from facilities such as the Fertilizer Center. Through organic agriculture, farmers can produce healthier produce and as a result reduce the cost of non-organic materials such as pesticides and fertilizer. The product can be sold at higher prices however, markets for organic product have not yet been established by the organizations involved. More time and effort is needed to achieve this goal and customer awareness will also be important to bring success.

Fertilizer availability is another issue that the organic farming industry is grappling with. The “Achi Yuki-ikiki” compost made at the fertilizer center cannot fulfill the demand in Achi. Moreover, there is a possibility of a decrease of organic fertilizer from the center as a result of decreasing livestock farmers who supply the raw material for the product.

#### **4-2-2-3. Maintaining and Marketing Agricultural Products**

One of main problems in the agricultural sector is marketing. Achi residents and companies in the community such as Chisato Higashi desire to maintain the Achi village brand name. They assume that having an identifiable image for Achi products is beneficial for increasing profits as well as sales prices. However, stakeholders do not have sufficient information and knowledge about marketing. Finding a staff member for marketing purposes that has a good knowledge of Achi is a great challenge due to the low salary. Educating current staff members in the company demands time and money.

Community members also attempt to open shops which directly get agriculture products from producers to Nagoya and Iida city. The limitation in this effort is transportation and management of shop. The cost for opening, promoting and maintaining such a shop is high while the revenue is not yet stable.

The lack of food processing technology is another issue inhibiting industry development. Food processing technology is an application of food science for the selection, preservation, processing, and packaging of food. This technology is needed to maintain food nutrition, taste and to maintain food safety. The association cannot compete with large food companies which have advanced food processing technology.

### **4-3. Suggestions**

#### **4-3-1. Attract People to Become Farmers**

Decreasing number of farmers reduces food self-sufficiency in Japan. National and local governments should make this issue a high priority. The Japanese government could increase their subsidies directly to farmers. The government should also consider increasing efforts to maintain the current price level for agricultural products such as creating policies to protect the domestic market. Support from local governments could come in the way of providing initial facilities and machinery required by new farmers. To be farmer in Achi, requires land, a four-wheel drive car and a certain amount of funds as capital.



Another way to attract people to become farmers in Achi is through promotion of successful farmers. There are successful farmers in Achi that could become kind of agricultural success stories. The local government could advertise through youth networks such as job search networks that people access when looking for work. The government could also attend larger career change events for young people. They also should advertise facilities and support provided to people immigrating especially for people outside of Achi.

#### **4-3-2. Inviting Volunteers**

There are a number of networks in Japan which support the agricultural sector by providing manpower. Local government should join these systems to increase the number of farmers in Achi village. They could form agreements with Japanese Overseas Cooperation Volunteers to invite volunteers. These volunteers for example are Japanese who comeback from overseas after conducting volunteer work abroad in the agricultural sector. Many volunteers believe that they should support the agricultural sector in Japan to develop it.

Local government also could cooperate in Agricultural Internships which are managed by the Japanese Agriculture Cooperation's Association. Young people who are interested in farming but do not have farmland participate, gaining knowledge and skill about agriculture through this internship program. The number of farmers will increase by employing this system.

#### **4-3-2. Advertisement of Organic Agriculture Products**

Based on distributed surveys, residents of Achi village began organic farming to make their agriculture more sustainable. Organic agriculture is one method for sustainable development. There is a need for advertisement of this system to establish greater markets for organic agriculture products.

Advertisement of organic fruits and vegetables should be promoted to increase the awareness of customers especially in current market areas like Nagoya City and other cities near Achi village. A pamphlet containing information about how to cultivate organic agriculture and what the benefits of organic agriculture are would be sufficient. This advertisement should differentiate between organic fruits and vegetables against non-organic agricultural products that include imported products. Achi village has a great advantage in growing organic vegetables. Through effectively advertizing this, one can expect that consumer interest lies not only in prices but also in the safety of products. Consuming organically farmed products also contributes to a healthier environment by encouraging farmers not to use chemical fertilizer. Japanese customers should pay attention to what kind of products they are consuming. The impact of increased awareness to organic agriculture products will increase the welfare of Achi village residents, especially organic agriculture farmers.

#### **4-3-3. Creation of Souvenir Boxes for Tourists**

Souvenir boxes is one alternative to promote agriculture product of Achi. The souvenir boxes would contain various local products such as vegetables, processed food stuffs and seasonal fruits. Achi village has many tourist attractions and these boxes could be sold directly to visitors or by mail if buyer cannot carry them. Customer can ask about the contents of souvenir boxes over the phone or internet and send them as presents to family or friends. From the farmers perspective they can sell products at a higher price since the boxes would be sold without a

middleman. Tourists can buy fresh vegetables in a convenient way and this collaborative effort would have a mutually beneficial effect.

#### **4-3-4. Creating Farmer's Organization**

Most farmers sell their products through the Japan Agriculture cooperative (JA). JA is the biggest distribution company in Japan which purchases agriculture products from farmers and sell it to various market throughout Japan. In Achi village, there is a cucumber farmer's organization. Through this organization, cucumber farmers sell their products at higher prices than those sold by the JA. They are also able to supply cucumber to supermarkets in Nagoya city regularly. Other farmers such as those who cultivate asparagus and persimmon should create similar organizations. Through consolidation, farmers have more opportunity to share and obtain important information. Farmers bargaining power will also increase since they can supply more products regularly to specified markets. Such organizations will be an alternative way of selling local agricultural products.

### **5. Conclusion**

The working group researched sustainable agriculture in Achi village. The research attempted to provide possible solutions for tackling problems related to the sustainability of agriculture such as the decreasing number of farmers and low incomes. Recommendations from the working group to maintain and improve current conditions are also provided.

The various problems within agriculture are closely related. In an aging society, the majority of people who engage in agriculture are old; this is true for both Achi village and the rest of Japan. This situation leads to lower productivity from farmers. There is also a decreasing number of farmers since many elderly workers stop farming yet there are few young people who want to follow the older generation. This decreasing number is also caused by the deflation of income levels in agriculture.

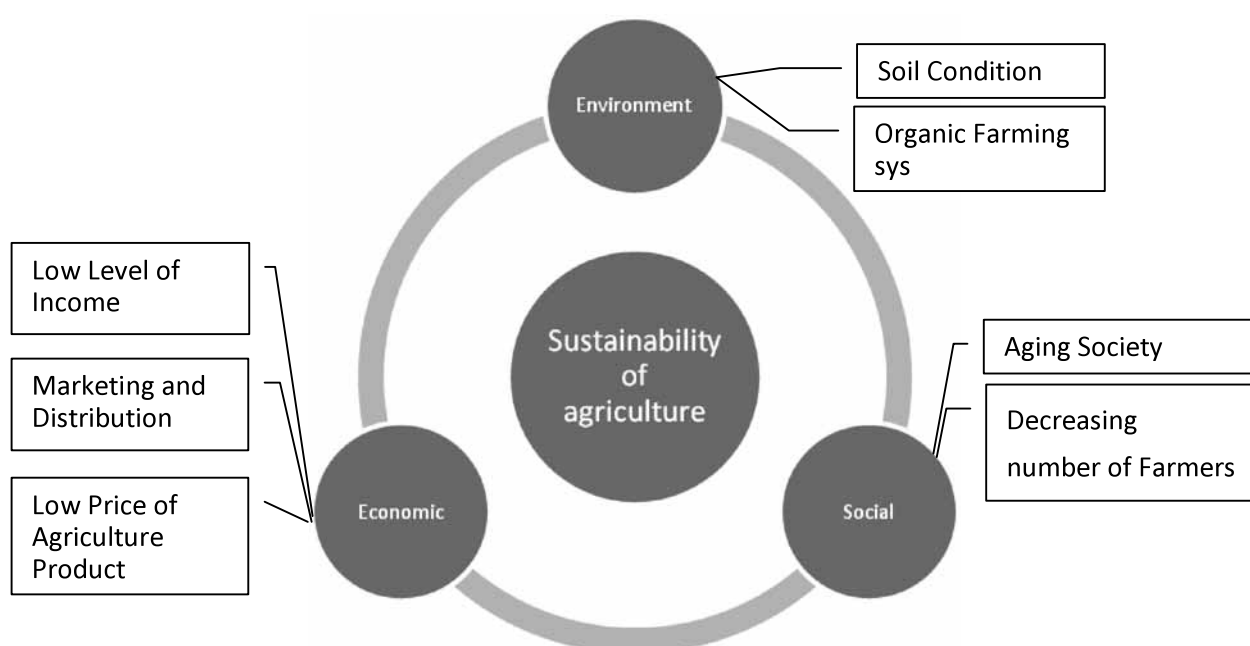
Farmers' low incomes could become a serious issue for sustainable agriculture in Achi village as well as throughout Japan. This condition makes agriculture less attractive than other sectors and causes some to lose interest in becoming farmers or take part in farming only as a last resort for generating income. Social dimensions are related to the number of farmers in Achi which are decreasing because farming is considered a low income occupation and less attractive job. Through agriculture, Achi villagers also must consider the environmental ramifications as the effects of producing non-organic fruits and vegetables can be damaging for future agriculture and the health of consumers.

It is also inevitable to increase the support of national and local governments. Incentives from the Japanese government such as subsidies to farmers and local government support could attract people to work in agriculture. Another important issue is communication among stakeholders of agriculture in Achi village. The Municipal Office staff, Agriculture Support Center staff and farmers should have good communication to exchange opinions.

During the research, the research group found there is still gaps in information among stakeholders. Good communication can create similar perspectives that is important for taking action.

Finally, in order to realize sustainable agriculture, three perspectives are required, the social, environmental and economic dimension. These three dimensions are closely related to each other. Based on the research, the study group concluded that all dimensions related to sustainable agriculture in Achi village related to society, the economy and the environmental should be acknowledged. Current agricultural conditions should be maintained and gradually improved to ensure that agriculture remains economically viable, socially acceptable and environmentally safe.

**Diagram 5.1 Sustainable Agriculture in Achi**



## 6. ACKNOWLEDGEMENT

Visiting rural areas in Japan and especially to acknowledge more about the agricultural conditions in Achi village has been a great learning process. For international students, it increases knowledge and experience regarding rural development in Japan and the problem encountered, taking lessons to assist the development of their own countries. For Japanese students, it provides fact about the important role of agriculture and related problems, increasing awareness of policies related to agriculture.

We would like to express our greatest appreciation and thankfulness to all interviewees who have provided time to answer our questions and explain their environment to us. We experienced kindness beyond our expectations and acquire very useful information. We are also thankful to the Municipal Office and its employees

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