





# Chapter 7

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## Becoming an Agricultural Island

# Kikai

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Village by the seashore

Kikai, located in the Pacific Ocean just off the northeast shore of Amami Oshima, is 380 kilometers from Kagoshima City and 69 kilometers from Naze City. It has an area of 57 square kilometers and a circumference of about 49 kilometers. It is 14 kilometers long from its northeast tip to its south-southwest tip and 7.8 kilometers wide. The greater part of the island is uplifted coral reef and almost the

whole island is covered with Quaternary limestone.

The island reportedly rises between 1.5 and 1.9 millimeters per year. Almost none of the flora or fauna on the island appears to be aboriginal. This is because after the island broke away from the continent, it subsided into the ocean but rose to the surface again as an uplifted coral reef. There are no vermin like the



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venomous habu snakes. Nor is there any precipitous topography that prevents people from entering. Kikai is a very comfortable island for humans.

Villages are situated along the coast with farmland behind each village. Slightly to the east side, a ridge called the Hyakunodai Hills runs like a spine along the length of the island and slopes gently from east to west. Its highest point is 225

meters above sea level. Kikai is relatively flat with almost no rivers or streams. The climate is mild. During the thirty years from 1966 through 1995, the annual mean temperature was 22.4 degrees Celsius and the annual mean rainfall was 2,230 millimeters.

Although over twenty thousand people lived on the island before World War II, the population started to rapidly dwindle after the end of the war. Only 9,296 people remain today. About thirty percent of the population is concentrated in the southwest part of the island in two towns called Wan and Agaren. Depopulation, aging and a low childbirth rate are very conspicuous in almost all of the other villages.

In 1466, the Ryukyu Kingdom subdued Kikai and ruled the island for the following 150 years or so. In 1609, the Shimazu Clan conquered the Ryukyu Kingdom and took over rule of Kikai for about 260 long years until 1871 when today's prefectures were established to replace the feudal domains.

At the end of World War II in 1946, the United States Armed Forces separated Kikai from Japanese administration and occupied the island for about 8 years. But on December 25th, 1953, along with Amami Oshima, Tokunoshima, Okinoerabu and Yoron, Kikai was returned to Japan.

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## *Heike and Genji Soldiers on Kikai*

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Kikai folklore describes numerous interesting visitors including the military commander Tametomo Minamoto of the Genji Clan, the famous Buddhist priest Shunkan, and deserters of the Heike Clan.

A fountain exists on the island called *Karimata no Izumi* (the Forked Arrowhead Fountain). According to folklore, the military commander Tametomo arrived on the island at a village called Onotsu on the northwest shore. As he was approaching the shore, he shot a forked-headed arrow onto the island to determine if anyone was there. Seeing no reaction to the arrow, he came ashore and pulled out the arrow from the ground, but when he did, fresh water gushed out.

It is speculated that before long, Tametomo sailed across the water to Amami Oshima after noticing its immense silhouette to the west, and that he continued on to the Ryukyu Islands via Tokunoshima and Okinoerabu.

According to other folklore, a group of Heike Clan soldiers deserted their posts the night before the naval battle at Dannoura in the Nagato Domain (northwestern Yamaguchi Prefecture). They sailed from the Buzen Domain (eastern Fukuoka Prefecture and northern Oita Prefecture) to southern Kyushu, and then south to Kikai via Yaku Island. The Heike soldiers resided

on Kikai for three years during which time they discovered the colossal Amami Oshima nearby. Finding out that Amami Oshima had no lord, they approached the island on three sides by ship and attacked.

After the Heike soldiers subjugated the whole island, it is believed that Heike General Sukemori constructed a castle in an area called Shodon on Kakeroma, which is an island immediately southwest of Amami Oshima. Heike General Arimori is believed to have settled down in an area called Uragami in the city of Naze on the northern part of the island. And Heike General Yukimori is believed to have constructed a castle in an area called Toguchi in the town of Tatsugo on the eastern part of the island.

Other folklore describes Shunkan the Buddhist priest. An archaeological investigation was even conducted to substantiate the folklore. From the folklore about Genji and Heike soldiers on the island, we can speculate that Kikai actually did experience samurai and pirate assaults that are not disclosed in standard history books. Pirates from Bonotsu, which is a pirate base in the Satsuma Domain, used to pass through the Nansei Islands on their way to Guangdong and Fujian in China. Judging from folklore about Genji and Heike soldiers on Kikai, it is believed that the pirates were armed and also stopped at the Amami Islands a number of times.

Folktales about the deserters of the Heike Clan are found in about sixty or seventy areas throughout Japan. In all

cases, it is assumed that feelings of affinity for the faraway capital and for the heroes who escaped a gruesome finale are the motives behind such folktales. It is also assumed that pride in linking their family lineage with nobility is another factor that fosters the folklore among the people of those areas.

## *High Priestesses from Ryukyu*

As in the Genji and Heike folklore, visitors from the mainland islands had a great impact on the folkloric culture of the Amami Islands. But the deluge of Ryukyuan culture during the period of Ryukyuan rule had an even greater impact. During this period, the inhabitants of the Amami Islands adopted Ryukyuan culture for food, clothing, shelter and all other aspects of daily life.

But they did not adopt the performing arts of the royal court such as classical dance and classical music. Instead, the islanders were more interested in the performing arts of the common people and in what could be adapted to practical use such as material things, cooking methods, business methods and fishing methods.

The main reasons the Ryukyuan king subjugated the Amami Islands were to acquire the conveniently located harbors as relay points on his trading route and to

That is especially true for the Amami Islands because the islanders used to believe in Neriya, a sacred abode of the gods on the other side of the ocean. So it is assumed that such affinity and pride most likely played an especially important role in fostering such folklore on the islands.



Village path flanked by stone walls

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acquire fishing rights in the area. He had no intention of lording it over them.

Since ancient times on Ryukyu, when a person who had rendered distinguished service was appointed to a district, women such as his wife, sisters or females of powerful families on Ryukyu were appointed as *noros* (high priestesses) and sent along with him. The *noros* were entrusted with all religious services and were also given political responsibilities.

The person in charge of controlling the high priestesses and dispatching them to the Amami Islands was Her Majesty Kikoe in Shuri, the capital of the Ryukyu Kingdom. The king of Ryukyu controlled

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religion on the Amami Islands through this organization of *noros*.

Believed to be guardian spirits of the chiefs they served, *noros* gained the faith of the farmers and seamen of the islands. It is speculated that the *noros* also had the

## *Administrators and Exiles from Satsuma*

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During the period of Satsuma rule, administrators from the Satsuma Domain arrived at Kikai to set up the Satsuma administration. They monopolized sugar and demanded enormous amounts of sugar as tax payments from the islanders.

From 1753 to 1755, the Shimazu Clan received a mandate from the shogunate to undertake the difficult task of repairing the Kiso River. The clan had to borrow a great deal of money for the task and had trouble regaining good financial standing. Still worse, the extravagant lifestyle of Shigehide Shimazu, the feudal lord, drove the clan deeper into debt. So in their efforts to replenish their battered finances, the Shimazu Clan looked to the sugar on the Amami Islands as their source of revenue.

According to the records, in 1789, the Shimazu Clan designated the Amami Islands as islands of exile. Most of the exiles were political offenders and the like. The more serious the offense, the farther from the mainland the island of exile

role of collecting land tax for their chiefs from the believers. Descendants of *noros* still exist today everywhere on the Amami Islands, including Kikai, and the apparatuses used by the *noros* in religious services are still found in many villages.

would be, so Amami Oshima, being the closest island of the group to mainland Kyushu, was the island for those who committed the lightest offense. Those who committed a more serious offense were exiled farther and farther away to Kikai, Tokunoshima and Okinoerabu respectively.

Some of the exiles were men of high learning. For example, Sagenta Nagoya was an exile. He was the author of *Nanto Zatsuwa* (Notes on the Southern Islands), which contains extremely valuable historical source material about the Amami Islands. Yasutsugu Shigeno, who was a doctor of literature, was another exile, and the list goes on.

Many of the exiled samurais on Kikai contributed to the education and cultural development of the islanders. One of the clansmen exiled to the island in 1809 was the great scholar Kian Ijichi. It is said that when the islanders found out about his great learning, they built a small house for him and welcomed him as the mentor of their children. Ijichi contributed immensely to the education of the islanders until he was allowed to return to the domain three years later.

Before that time, during the Kanen

Era (1748-1751) on December 25th 1750, Shozo Ebihara and ten other exiles arrived to Kikai. They had been banished from the domain after they were arrested for suspicion of being Christians during a secretly held worship. Being a knowledgeable man, Ebihara also taught the island children how to read and write and was highly respected by the islanders. But it is said that he lived his remaining days on that lonely remote island.

Near the end of the shogunate in April 1862, Shinpachi Murata arrived to Kikai as an exile from Satsuma and lived in the village of Wan. Murata was one of Takamori Saigo's comrades who fell into disfavor with Hisamitsu Shimazu and were exiled mostly to Tokunoshima and Okinoerabu. Murata would gather the neighborhood children together and teach them how to read and write. Sometimes he would also teach the young men jujitsu and sumo at their request.

Textbooks that Murata wrote with his own brush reportedly are preserved in the houses of his disciples of those days. He also often composed Japanese poetry (*waka*). Two of his poems are said to be preserved at Toen Kijima's home, which was his temporary abode. In 1864, the first

year of the Genji Era, Saigo was allowed to return to the domain and so Murata left the island to accompany him. The islanders erected a stone monument to commemorate Shinpachi Murata and they still pay homage to him today.

So in that way, many exiles, including Takamori Saigo, contributed somewhat to the development of education and culture on the Amami Islands during the period of Satsuma rule. Even though they were under special restraints, the exiles on the Amami Islands worked dedicatedly towards the improvement of the culture and the enlightenment of the inhabitants of the Amami Islands.

All throughout the periods of rule by the legendary Genji and Heike Clans, the Ryukyu Kingdom and the Satsuma Domain, many visitors from the faraway world on the other side of the ocean visited Kikai and the other Amami Islands. Culture and information never stopped coming in from the outside. Kikai's relationship with the outside world is still much the same today. But now that the Information Age has begun, Kikai has also started to transmit information of all sorts to the outside world.

## *Agricultural Island*

"The main industry of this municipality is agriculture. To promote its develop-

ment, we aim to modernize farm management and the conditions for agricultural production and actively promote agriculture of high productivity." That is a quote from the Kikai Long-term Comprehensive



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Development Plan, which was mapped out in 1970. And as established by the plan, from the early stages, industrial development based on agriculture has been the main idea behind regional development on Kikai.

"Agricultural island," which is an expression that came into use in 1972, describes the concept of developing agriculture on Kikai with sugarcane as the main crop. Agricultural development on Kikai involved surmounting two major environmental problems. One was the preparation of the farmland and the other was obtaining an adequate supply of water for agriculture.

Consequently, these two problems were given top priority in the Amashin (Amami Islands development) operations in the town of Kikai. Because agriculture was seen as the engine of regional development, an urgent need was recognized for preparing farm fields, which are the basis of agricultural production. By 1998, 88.5% of the farm fields and 68.4% of the farm roads planned had been successfully prepared.

The problem of water shortage resulted from the island's geological structure. The island is covered with porous Ryukyu limestone and the entire island surface is one gently sloping flat area with almost no hills or valleys, so the water quickly permeates below ground.

In that milieu, the idea of constructing an underground dam was proposed as a national government undertaking. The



Sugarcane field

Kikai Underground Dam Plan was adopted in 1973, construction began in 1992, and the cut-off wall of the underground dam was completed in 1999. Today, construction of the reservoir and the pipeline to transport the water is underway. Through prefectural management, completion of all irrigation facilities is forecast for 2010.

When the underground dam is completed, the yield of sugarcane and the secondary crops, along with flowering plants and garden products, is expected to increase. While working on those two tasks of preparing the land and developing the water supply, the administration is aiming to increase the scale of production by bringing in large-size machinery. It is also aiming to solve two more problems: the



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decreasing number of farming households and the aging of the people.

## *Best Sugarcane on Amami Islands*

On Kikai farms, the cultivated area allotted to sugarcane per farming household is the largest and the yield per ten acres is the greatest in the Amami Islands. Compared to other crops, sugarcane is easy to plant and harvest and is not easily affected by climate, so numerous people throughout the Amami Islands are engaged



Highly mechanized sugarcane mill

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Harvesting sugarcane

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in the sugarcane industry. The administration is also cooperating in a diversity of ways.

Sugarcane was first introduced to Amami Oshima when a man named Kawachi Sunao from the village of Yamato on Amami Oshima brought some back from Fujian China in 1609. The same man also showed the islanders how to make sugar from the sugarcane. There are indications that sugarcane was grown on Okinawa before that time, but records indicate that sugar production was not known on the

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island until 1612.

Farmland considered ideal for commercially growing sugarcane has an annual mean temperature of at least 20 degrees Celsius, no frost, enough rainfall during the growing period, and continuing clear and dry skies during the ripening period. The ideal geographical range for sugarcane plantations is between 35 degrees north latitude and 37 degrees south latitude, but even in such temperate tropical regions, land is not suitable unless the climate has distinct dry seasons and rainy seasons.

Sugarcane is considerably resilient to droughts, typhoons and salt damage, so sugarcane is the most suitable crop for the Nansei Islands, which are often hit with severe droughts and typhoons. In fact, decreases in yield never exceed thirty percent on the islands.

The longer the duration of sunlight, and the hotter and more humid the climate, the greater the yield becomes. Incidentally, the average yearly rainfall on the Nansei Islands is from 1,800 to 2,500 millimeters, which is very close to the ideal of 1,500 to 2,000 millimeters for sugarcane cultivation. Kikai is very suitable for sugarcane cultivation because it has an average yearly temperature of 21 degrees Celsius and a subtropical oceanic climate.

In 1995, the number of persons in the agricultural workforce amounted to 28% of the total workforce of the primary, secondary and tertiary industries. This percentage is almost the same as it was fifteen years earlier in 1980. In the 1997 statistics,

there were 1,076 hectares of sugarcane fields on Kikai. That amount was about half of the island's total cultivated area of 2,130 hectares. The statistics also show that the cultivated area allotted to sugarcane per farming household was 1.3 hectares in 1980, but increased to 2.1 hectares by 1995.

The yield was over a hundred thousand tons in 1989 but dropped to less than a hundred thousand tons the following year and is now fluctuating at around eighty thousand tons. According to 1996 statistics, Kikai's total output for agricultural products yielded 2.165 billion yen in 1996. Sugarcane accounted for 74% of that. Sugarcane farming in Kikai has the highest actual yield, production volume, and per capita production of all municipalities in the Amami Islands.

According to the general accounting statistics for Kikai finances in fiscal 1997, however, only 14.2% of the annual revenue came from independent revenue sources. The remaining 85.8% came from dependent revenue resources such as tax money received from the national government. Although Kikai is aiming to become an agricultural island, like the other islands of the Amami Islands, the actualization of a self-sustaining economy remains a difficult problem and is not foreseeable in the near future.

## Super-Aged Society

The 1990 national census showed the population of Kikai Island to be 9,641, which was the first time it dropped below 10,000. The population was 9,360 as of December 1, 1999. It had started diminishing steadily after 1955. By 1995 the population dropped to 57.8% of what it was before the beginning of the decline.

From the 1995 national census statis-

tics in which the population is divided into three age segments, namely "under 15," "15 to 64" and "65 and up," we can see that the young generation has been flowing out during the high growth period of the economy. We can also see that the proportion of the "65 and up" segment is high and rapidly rising on the Amami Islands, which are undergoing a population drain.

For Kikai, the "65 and up" segment occupies 29%, which is a higher percentage than for any other municipality in the Amami Islands. Other statistics in the



Party in the evening

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Singing together

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national census indicate that the elder members greatly outnumbered the younger members of the agricultural workforce on Kikai in 1995, with 45% "under 60" and 55% "60 and up." From 1990 to 1995, there was a 13% decrease of agricultural workforce of the total, but a 8% increase for the "60 and up" segment.

In the statistics for 1997, Kikai had an agricultural workforce of 1,540 people of whom as many as 55% were "60 and up." Only 23% were "50 or under." At this rate, 70% of the agricultural workforce will be "60 and up" in ten years.

In 1970, Japan became an "aging society" when its "65 and up" segment reached 7%. And in 1995, Japan became an "aged society" when the segment surpassed 14%. (According to United Nations criteria, an

"aging society" has a "65 and up" segment of at least 7%, while an "aged society" has a "65 and up" segment of at least 14%.)

The Ministry of Health and Welfare Institute of Population Problems estimates that Japan's "65 and up" segment will surpass 20% in 2010. The institute forecasts that Japan will beat out all of the aged societies of advanced nations in Europe and America to become the world's first "super-aged society." One out of four people will be at least 65 years old.

A 1999 survey of municipalities shows that the "65 and up" segment on Kikai has reached 31.2%, which is considerably higher than the other municipalities in the prefecture and in the country. This is quite an increase over the 29% figure for 1995.

## *Agricultural Island's Future*

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These statistics clearly indicate that the agricultural workforce is diminishing and that the workers are aging. The challenges now facing the islanders are to increase their productivity and create an agricultural system that supports the farming households.

Two necessities have been pointed out for agricultural development in the region. One is the promotion of effective utilization of the land, machinery, facilities

and manpower for the agriculture in the whole region. The other is the establishment of an integrated system in which municipalities and agricultural cooperative associations help farming households set up their farm management.

It was decided that the farmers' net income for sugarcane would be 20,450 yen per ton from 2000 through 2001. The national government is purchasing the sugarcane at eight to nine times the price of imported raw sugar. Moreover, as with rice, there is no production adjustment, and there is no need to fuss over dispatching or securing marketing outlets, or to worry about market conditions.

In the future, farming households will increasingly receive work from third sector agricultural development cooperations and from farming groups that are in the process of being formed in each community. In the work operations, the farmers will be planting and managing the sugarcane themselves, using sprinklers from the underground dam reservoir for the watering, and operating harvesters for the harvesting. This setup will make it much easier for the old farmers. For that, a system to make it easier for farmers to borrow or buy farmland will become necessary and farm roads will have to be widened.

Moreover, in the regional development plans of the administration, the direction of agriculture on Kikai will be toward the promotion of a compound type of agriculture. The agriculture will combine garden products, livestock and other highly profitable products in line with the trend of demands on the market. Today, progress involving a diversity of elements is also being made in the production of flowering plants, vegetables, fruits, beef cows and other crops.

Chrysanthemum cultivation especially has been progressing in recent years. Some areas particularly are pouring energy into it as a means of regional vitalization. Kikai's production of sesame, which is also widely cultivated, is the highest in Japan. Further growth is forecast for such additional crops through combined operations with sugarcane.

Sesame, Keraji oranges (a variety of orange endemic to Keraji village), *tankan* oranges, chrysanthemums and numerous other crops on Kikai are considered to be worthy of further support, and now that we are entering the 21st century, the time has come to consider them. But in the midst of an aging workforce, such potentially profitable development will amount to nothing unless more young people join in to carry on the operations.

A great number of the young islanders are now engaged in the construction of the underground dam. Over ninety percent of the farmland is now prepared. When construction of the dam is completed in 2003, the only big operation left to accomplish will be the village drainage system.

Problems still requiring solutions involve agricultural land and machinery and funds for daily life until all the projects are underway, so that the young people can smoothly make the transition into the world of agriculture. For that, it will be necessary to involve the farming groups that I mentioned earlier and to work on accumulating farmland and making it easier for the young people to lease or buy farmland.

Agricultural machinery will be purchased and controlled jointly with the farming groups. Agricultural improvement funds, Amami Islands Development Funds and other funds should be used to the fullest extent. And when agriculture on Kikai develops sufficiently to survive without subsidization, Kikai will be dazzling.