Reversing Pressures: Farmers' Approaches towards an Environmentally Friendly Society in Ogata, Japan

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Introduction

In Japan, barely 20% of marketed rice is organic or semi-organic[1)] fields in 2001 (MAF, 2002), and only a handful of local governments are planning to introduce cost sharing incentives for environmentally friendly agriculture. However, in Ogata Village in the Northern prefecture of Akita, Japan (Fig 1), 80% of the rice is organic or semi-organic, according to a 1998 Akita Agricultural College survey (Fig 2). This outstanding figure was realized through Ogata farmers' unremitting struggles to overcome the economic, political, and social pressures that mounted over 30 years of settlement on Ogata's newly reclaimed land. Ogata sits on what used to be Hachiro-ko (Lake Hachiro). It is now a distinctive geographic feature, a "closed water system" that includes the remnants of Lake Hachiro, irrigation channels, and river systems of the surrounding area. This paper will look at two distinctive Ogata grassroots movements. One played a role in creating an environmentally-friendly farming society. Another, Ogata Environment Creation 21 (OEC21), promises a new era of environment-centered thinking combined with agricultural industry support.

I. Pressures that formed Ogata Environment Creation 21 Formation

Local and global agricultural policies have greatly impacted Japan's rice farmers, both today and at Ogata's founding in the 1960s. The first section of this paper describes the intricate history that lead to the June 2001 formation of the OEC21.

1. Economic and political pressures at the beginning of Ogata Village formation

In 1964, a 17,000 ha, 85.2 billion yen reclamation project turned Japan's second largest lake, Hachiro-gata, into Ogata Village (officially founded in 1967) (Ogata Reclamation Project, 1979) (Fig 3). Hachiro-gata used to provide half of Akita Prefecture's marine products and supported around 1,000 area households in fishing-related industries[1)].

Imprinted role of Ogata

Ogata's reclaimed land was initially intended to be Japan's food basket. When the project started, Japanese rice production was not yet meeting the nation's needs. National agricultural policies of the time sought make Ogata Village a "model village"

for future Japanese agriculture (Nosei Chosa-iinkai, 1982). Large rice fields, mechanized operations, and cooperative farm management were the model's key characteristics. Starting in 1967 and continuing for twelve years, 589 selected farm families migrated from 36 prefectures and the Tokyo Metropolitan area (JA Ogata, 2003). By the time the fifth migrant wave settled in 1974, each farmer had been granted 15 ha of field.

Rice productions boosts to acreage reduction policies

The Ogata reclamation project was created to boost rice production. As Japanese rice production steadily increased in the 1970s and national rice stocks peaked at 7.2 million tons, (Rice Databank Co. Ltd., 2002)[2)] however, the government quickly reversed its policy and mandated rice reductions. In 1973, the Ogata Reclamation Corporation decided to grant farmers 15 ha with the condition that farmers would plant half with rice and half with other crops (Tozawa, 1993 p.38). Confused Ogata farmers protested. Political beliefs but also debt payments motivated the farmers. The first four Ogata migrant groups typically owed initial 20-year loans of 60 million yen.

Ogata farmers' protests against government intervention drew attention from other Japanese farmers as well as ordinary citizens. As Ogata Village was formed by Japanese national policies and the village is an agriculturally-based community, changes in agricultural policies sharply affected the Ogata community.

2. Major agricultural policy pressures and Ogata rice farming

Liberalizing marketing strategies

In the late 1970s, the national government began to take strict measures, including restrictive rice production policies and penalties against non-cooperative farmers. Ogata farmers split on how to deal with the policies. Two different rice marketing strategies emerged. The pro-government group sold their rice through Ogata Country Elevator Public Corporation at the government-set price, while the anti-government group marketed rice through private (and, at the time, illegal) channels. The pro-government group tried various field crops, but not all were successful or readily marketed in and around Akita Prefecture. While the anti-government group developed their own marketing channels geared towards rice consumers' demands, the pro-government group struggled with obligatory non-rice crop production, yet were still not able to receive subsidies granted to other Japanese farming communities. Strong tensions existed between the two groups well into the late 1990s.

Globalization and rice marketing policy adjustment

The Staple Food Control Act[3] that had supported rice as a national staple was modified through globalization processes and rice overproduction. Starting in 1969, the government reduced its commitment to buy rice, but began to change rice marketing systems. The new systems diversified rice values and allowed designated dealers, the agricultural co-ops, to respond to consumer demands for higher-quality quality rice. Rice prices rose sharply from the early 1970s to mid-1980s due to the 1974 oil shock and associated hyperinflation[4]. The gap between the international and domestic rice prices grew further with the depreciation of the Japanese yen against the dollar.

Crushing rice prices: end result of reforming rice policies

Relatively high rice prices into the mid-1990s began to turn downwards with the abolition of the Staple Food Control Act and the 1995 introduction of New Food Act. The New Food Act basically allowed rice to be marketed just like any other commodity. Japan's 1995 entrance into the World Trade Organization also put direct and indirect pressures on Japan's rice marketing policies. Falling rice prices particularly affected large-scale farmers like those in Ogata. Within six months, estimated yearly incomes had dropped by some one-million yen for some farmers.

3. Social awareness of environmental problems sprouts civil movements in Ogata

Environmental pollution intensified and was widely publicized in the 1960s as Japan's industrialization grew[5]. In Ogata, where the closed water system encouraged water pollution, environmental hazards were first noticed in the 1970s by a few individual farmers and housewives. In 1980, a grocery store run by the Ogata Village Agricultural Co-op removed all the synthesized washing detergents from their shelves. In 1983, use of the herbicide CNP (chlornitrofen), which contains dioxin, was banned by the Ogata Village Agricultural Co-op.

Beginning of large-scale organic farming in Ogata

A pioneer of organic rice farming in Ogata, Mr. Maeda encountered a shocking scene in June 1994. Numerous young black-browed reed warbler birds[6] were dying in agony along the rice field ridges. To control against rice leaf beetle[7] outbreaks, an organic phosphate pesticide had been sprayed by helicopters over the whole 4,600 ha of rice fields. Mr. Maeda refused allow aerial cover spray practices on his land and began to seek ways to reduce chemical sprays as well as chemical fertilizers. In 1982, Mr. and

Mrs. Maeda started to grow organic rice even though others looked at them with curiosity as they hand-weeded their fields (Fig 4).

A social scientist's role in Ogata environmental issues

Cooperation between farmers, agricultural researchers, and industry became more relevant around 1990, as many technological breakthroughs were achieved. Although farmer division persisted well into the late-1990s, the sharp rice price drop in the late 1990s helped farmers come together to seek solutions to the crisis. In December 1997 and January 1998, a significant panel discussion entitled, "A Road towards Agricultural Revival" was held. It was initiated by second-generation Ogata farmers at the suggestion of a young social scientist, Dr. Takahashi from the Agricultural College in Ogata. At two packed sessions, pro- and anti-government groups held active discussions (Mainichi Shinbun, 2001 Jun.3). One of the guest speakers, Dr. Nakajima, recognized Ogata farmers' advanced environmental awareness. Forum organizers decided to investigate the current status of Ogata's environmental agriculture by sending a questionnaire to all Ogata farmers. This would be a turning point for the rather scattered Ogata environmental movements.

II. Dynamics of Ogata Environment Conscious Farmers

As discussed, multiple pressures tugged Ogata farmers in many directions. Mostly farmers moved in multiple small groups rather than an organized, large-scale movement. However, as the following sections shows, the pathway to OEC21 began to draw farmers together. Numerous personal interviews, as well as archival research, tell the story.

1. Struggles of pro-government farmers

Pro-government farmers had long struggled to find suitable crops for Ogata's environment and to develop niche market crops and innovative farming methods. Despite significant economic pressures, their efforts started to bear fruit in the 1990s. Mr. Yamashita, in particular, struggled to reverse the pressures on the Ogata community.

Emerging joint efforts among farmers, researchers and agricultural industries

Mr. Yamashita came to Ogata as a 4th wave migrant from Hokkaido in 1970. His rice field happened to be adjacent to the Akita Agricultural Research Station's experimental rice station. One spring day in 1989, he saw a group of researchers planting soybeans

with a newly developed no-till planter. It sparked his interest and soon he applied the no-till principle to help eliminate puddling problems in his rice field.

Rice fields must be made level through puddling prior to planting. Mr. Yamashita disliked the strenuous, cold, and dirty spring work, and he thought that no-till[8] was the answer. Mr. Yamashita quickly developed a prototype no-till rice planting machine (Shoji ed., 2001). In 1991, ten Ogata farmers including a soil scientist, Dr. Tanaka, initiated a study group called, "Ogata Low Input Sustainable Agriculture" (O-LISA), and started to modify and make no-till rice farming feasible.

Fertilization demands initially hindered the time- and labor-saving benefits of no-till technology. Quick release nitrogen fertilizers must be broadcasted after transplanting. Applying post-planting fertilizer is demanding work, yet it is mandatory to assure optimal vegetation growth before tillering. Mr. Yamashita thus also invented another important technology: a single basal nursery fertilizer application (Fig 4). With the help of a coated fertilizer developed by a fertilizer manufacturer (Shoji, ed. 2001), Mr. Yamashita created an assembly line to mass-produce nursery beds in his shed. This innovation quickly spread beyond Ogata and is now becoming an important technology for rice farmers in Akita and surrounding prefectures (Fig 5). The technology provides very efficient fertilizer application, and also prevents nitrogen from leaching into the soil.

Another challenge was to make no-till machines available commercially. In 1994, the Ogata group went to two different agricultural machinery companies to ask them to produce a no-till rice planter. One company modified the idea and came up with a machine that can be used for no-till, no-puddling, and conventional rice fields (Fig.6).

In 1997, O-LISA formed into a machinery cooperative and purchased two no-till machines to share. Dr. Tanaka and others studied the technology closer and found that, in terms of total nitrogen and phosphate, no-till can actually create cleaner out-flow drainage water than the in-flow irrigation water (Kaneta, 2002 p.217). No-till in Ogata also creates higher yields, better drainage, fewer suspended solids and less methane formation. The population of red dragon flies is also eight times more over no-till fields than in conventional fields[9] (Kaneta, 2002 p.220). The technology, however, has not spread beyond this group (Sato, S. and Taniguchi, Y., 2002) as the initial investment is high, and there no economic rewards, since the rice sells for the same price as

conventional rice.

One of the short falls of no-till rice is the expensive no-till machine that can only be applied to large-scale fields. The O-LISA cooperative hopes to further cut costs by eliminating the use of the now-mandatory herbicides. They are investigating alleopathic use of a legume called hairy vetch[10]. Once the cropping patterns of hairy vetch and rice are sorted out, this will be another much-needed breakthrough for environmentally-friendly agriculture.

2. Grassroots housewives' movement

Another important movement was initiated by housewives in the 1970s. This grassroots movement was critical as it helped educate the community not only on farming but how to live in a closed-water system environment.

The women's group challenges environmental issues

A grassroots Ogata Village Agricultural Co-op women's movement took place in 1980. Soon after the women's group learned how synthetic washing detergent could affect aquatic ecologies[11], they demanded that the Co-op supermarket not sell synthetic detergent. The Co-op supermarket was the single largest outlet of the groceries in the village. Furthermore, in 1982, women members of the Ogata Organic Farming Study Group requested that Ogata Village's regular council meeting investigate pesticide residues in drinking water and ban herbicides containing dioxin (Gotsu, 1991 p.190). A CNP ban was introduced in 1983. Ogata farmers were well aware that their Hachiro Lake drinking water was part of the same closed-water system used for agricultural purposes.

Crucial turning point for the women's grassroots movement

In 1990, another epoch-making movement began. Some thirty households acted together to raise public concerns about a golf course planned by the Ogata Village administration. The golf course was to be shared with eleven surrounding villages and towns. The core group against the project consisted of over a dozen women, one of whom became the head organizer. Ogata farmers and consumer groups banded together and hosted a national meeting against golf course developments in 1990 (Kawai, 2003). Fifteen of the seventeen districts in the Ogata farming community spoke against a golf course near their residential area. After a year-long struggle, the village administration finally gave up the golf course idea. The opposing farmers initially thought it was going

to be a losing battle, but they were thrilled to find that ordinary people could reverse village government plans. Out of this event, numerous changes in civil movements would emerge[12].

Creating cleaner environment in daily lives

Out of the 1990 anti-golf course movement, a group of activist housewives emerged. Nine women, empowered by their success at stopping the "unwanted" golf course, sought to do "something useful" for their community. One day one member received a packet of hand-made soap from a soap-making group. This triggered the women to start making soap with used cooking oils from the village schools and an Agricultural Co-op restaurant. They started to sell their soap named "A Dream of Taro" (Taro is a legendary dragon from Hachiro-gata) in 1992, and the same year developed a plant to produce a powdered washing soap in an Ogata Agricultural Co-op storage building. The powdered washing soap cleared the Japanese Industrial Standards four months later. They also obtained the "Eco Mark" granted by the Ministry of Environment's affiliated organization, the "Japan Environment Association". They continue to receive special attention from surrounding communities as well as communities in other prefectures.

III. Formation of Ogata Environment Creation 21

OEC21 was a much needed environmental forum. The following section tells of its development.

1. A social scientist's initiative

Soon after rural sociologist Dr. Takahashi came to the Agricultural College of Akita Prefecture from Tokyo in 1992, he encountered three second-generation Ogata farmers at a local restaurant. They were a pro-government group, loudly discussing the grim future of the government-controlled rice-marketing system. Dr. Takahashi decided to help the young farmers learn about direct rice marketing. They began to run regular group study meetings.

The 1997 sharp rice price drop had caused increased anxiety about the future of Ogata rice farming. Ogata's environmentally-friendly agriculture would be in jeopardy if profits from organic and semi-organic rice fell (OEC21, 2001, p.10). Further, other environmentally-friendly practices had won little public recognition and few economic incentives. The environmental benefits of Ogata's farming techniques could no longer been confined just to individuals or farmers' circles if Ogata farmers hoped to make the

profits necessary for their survival.

Primarily young, second-generation Ogata farmers and researchers started to seek ways to gain public support for environmentally-friendly agriculture.

2. Uniting beyond individual groups

In Ogata, it is not difficult to find farmers involved in a dozen different study circles and other business activities[13]. However, the entire village had yet to join together for a common purpose. Dr. Takahashi, who had led various grassroots movements, including organic farming groups, sensed that it might be difficult to bring Ogata's residents together through the typical Japanese structured group style. Therefore, he focused on a key word, "environment," that might unite the community. He began to think of ways to involve the many existing groups. His suggestion was well received by many of groups he contacted. Leaders from dozens of already-established environmentally-minded groups formed the OEC21 declaration committee.

Concurrently, a group of researchers had started to consolidate research on Ogata's environment. Soil scientists, biologists, hydrologists, and social scientists joined together to analyze the effects of environmentally-friendly agriculture in Ogata. It started as an Akita Agricultural College project that revealed the scale of environmentally-friendly agriculture in Ogata. Later, the Japan Science Foundation granted research funds for a three-year comprehensive environmental study. The accumulated data confirmed the benefits of Ogata's environmentally-friendly agriculture and raised important issues that needed to be dealt with.

In June 2001, OEC21 commenced officially. An official declaration and data book were prepared to show the current status of environmentally-friendly agriculture in Ogata. The publication was put together through the efforts of farmers, housewives, the village government, and researchers.

Since OEC21's initiation, several main events have strengthened ties between insiders and outsiders. In November 2001, Dr. Kaneta discussed Ogata innovations at an international symposium titled "Agricultural Innovation for Sustainability." In June 2002, guests from four Akita and Tokyo consumer groups participated in a field tour of Ogata. In November 2002, two Tokyo consumer groups discussed food-related environmental issues with Ogata farmers. Most recently, in March 2003, Dr. Koike from

Shiga Prefectural University presented a case for environmentally-friendly rice farming around Lake Biwa in Shiga Prefecture.

IV. Reversing pressures; OEC21's mode for action and future implications

Aims, characteristics, and the goals of the movement

An important goal of the movement was to focus multiple stakeholders on one shared purpose: the environment. In particular, organizers hoped to show how better environmental practices could lead to both improved farming and living standards that could further create a real model for sustaining Japan's farming communities (OEC21 Declaration Article 5th and 6th, 2001). OEC21's grassroots movement indeed involves a wide range of stakeholders: farmers, housewives, researchers, extension workers, village council members, Agricultural co-op members, and consumer groups. It hopes impact the surrounding communities by creating a working, environmentally-friendly farming society.

Ogata's OEC21 grassroots movement developed rapidly, but it should be noted that individualism and the social division amongst the Ogata community is still strong and OEC21 is loosely structured. OEC21 consists of a large variety of genuinely interested people who care about their farming and life in Ogata. Understanding of environmental problems and the degree of commitment varies quite a bit from one member to another. This rather loosely bonded grassroots movement functions well in a society like Ogata's where strong-willed individuals came from different parts of Japan to form a young 35-year-old village.

OEC21's immediate goal is to create consensus on environmental cost sharing. The goal has not yet been realized despite the farmers' strong inputs. Through interactive meetings, OEC21 tries to appeal to consumer groups and policy makers. Shiga Prefecture has already introduced direct payments to farmers' who institute environmentally-friendly techniques, but that initiative was spurred by Shiga Prefectural University and the Shiga Prefectural administration (Koike, 2003). In Ogata, farmers have done most of the organizing work. Just now, the organizational structures of OEC21 have been put in place and members have started to consolidate their efforts and work towards environmentally cost sharing.

Future directions

OEC21's current aim is to gain public support for environmentally-friendly agriculture.

Profit margins for organic and semi-organic farming have become smaller (OEC21, 2001) and other proven environmentally-friendly agriculture exercises such as no-till and no-puddling are not reflected in retail prices. Farmers are losing their incentive to make progress on environmentally-friendly agriculture. Social scientists involved in OEC21 have suggested that environmentally-friendly farmers get social recognition and an environmental premium either as subsidies or on the price tag.

OEC21 is still in the beginning phase of creating economically-feasible environmentally-friendly agriculture in Ogata and it may take some time win support at the prefectural and national levels. However, their activities have already been supported by scientific evidence and their goals have been publicized through the internet, a data book, and various events.

Conclusion

Ogata Village was formed in 1967 as a model food basket of Japan. However, the 500-strong farm households who migrated in from around the country soon faced various social, economic, and political pressures that affected their farming and their lives.

Living in a pollution-prone, closed water system made Ogata farm households aware of environmental risks to their farming and health. An Ogata Agricultural Co-op women's group played a critical role in educating the community. As early as the mid-1970s, the women's group pushed for chemical spray restrictions and encouraged the use of environmentally-safe soap over synthetic detergents.

A major negative pressure, at least initially, was the rice field acreage reduction policies and government restrictions on rice marketing. These pressures, however, worked in positive ways as farmers outside the government system developed higher-quality niche rice that consumers wanted and earned maximum returns from their products. More than ordinary rice farmers dependent on government rice prices and subsidies, Ogata's farmers sought to better understand consumer demands. Consumer's voices were particularly reflected through direct rice sales, which became the majority of Ogata's sales by the mid-1980s.

Lastly, sharp rice pricedrops since 1997 became the primary pressure to form OEC21.

Farmers knew that they had to do something, but they could not find the answer by themselves. An experienced social scientist unified the community around a key word: environment. Together, the Ogata community worked toward a common goal.

Initially, environmentally-friendly measures were tied to farmers' responses to negative pressures. The true benefits were not fully realized until researchers showed Ogata to be one of the most progressive farming areas with some of the most environmentally-friendly agriculture in all of Japan[14]. The most distinctive characteristic of OEC21 is that its grassroots initiatives were begun by farmers and housewives. Natural and social sciences researchers were simply facilitators who helped provide the hard facts that farmers could use to improve their activities.

Now, when they want to appeal politically or economically to the public, farmers and housewives are equipped with concrete evidence to convince others to join their movement. OEC21 provided a theatre for all the stakeholders to achieve a common goal: an environmentally-friendly society. With OEC21 and their significant environmental activism and farming practices, Ogata's farmers may indeed claim once again that they are a model food basket for all Japan.

publisher:"Publisher Name" author:(Smith OR Jones). A New Approach Towards Environmentally Friendly Desulfurization.Â However the technology has an environmental challenge. The discharge of chemicals from the offshore installations has been given more attention the last past years, and Statoil is now working to implement "zero-discharge of environmentally harmful components". The discharge of the scavenger is the main contributor to the environmental risk at several Statoil operated fields, and it is of importance to reduce this risk. Statoil has established a project which has the object to reduce the environmental risk caused by H2S removal from the gas. Being environmentally friendly does not have to cost money. In fact going beyond compliance saves cost at the same time that it generates cash, provided that management adopts the new lean and green paradigm. Lean means doing more with less. That's why lean management supports green thinking and vice versa. Nonetheless, in most companies, economic and environmental continuous improvement are separate organisational silos and sometimes even come into conflict with each other. This is one of the biggest opportunities missed across most industries. Some companies are using lean and green as environmentally friendly practices (combating climate change, saving natural resources, preferential purchase and operation of environmentally friendly consumer goods and technical devices, proper waste disposal, etc.) used in all spheres of human life. Environmentally friendly behavior in the legal sense is the conscientious exercise by a person of his environmental rights and the proper fulfillment of legal duties to protect the environment. The state has two main legal ways to achieve socially beneficial environmentally friendly behavior: either by coercing it or by stimulating it.