

## **Two Concepts of Sustainability: Evaluation of Organic Farming**

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### **Key words**

Economic sustainability, capability sustainability, organic farming, evaluation

### **Abstract**

This paper deals with two concepts of sustainability, namely capability sustainability and economic sustainability. The former is generally referred to and defined in a broad sense to include environmental, social and human aspects, while the latter typically has a narrower definition and is widely used by economists, in other words economic viability. It is evident that capability sustainability is much more important than economic sustainability but the latter is still conditioned by the former: In other words, activities aimed at capability sustainability may not be maintained if they keep making a loss. This paper deals with evaluation of organic farming with regard to these two concepts.

This paper is based on my field research on organic farming in Japan, Korea and Thailand. Generally speaking, there are two types of organic farming: One is large-scale and profit-oriented, whereas the other is small-scale and environmentally aware. The economic sustainability of the former relies on a certification system for organic products, by which they can sell their products as organic in bulk to consumers in remote cities who are concerned mainly about their own health (the well-being aspects). However, some consumers are interested not only in their own health but also in the environment in which they live (the agency aspects). They prefer a face-to-face relationship with producers, who are usually the small-scale environmentally aware producers. This relationship is called *Teikei* in Japanese (meaning partnership or affiliation). One problem of the small-scale farmers is that their profits are very small, or economically less sustainable. In the age of globalization, the economically sustainable (or profit-oriented) type of organic farming is growing while the environmentally aware one faces difficulties. The Japanese government does not promote the environmentally aware model because of the low profitability, even

though it should be promoted from the viewpoint of capability sustainability. In contrast, the Korean and Thai governments, as well as the King of Thailand, are actively promoting the environmentally aware system. The difference between Japan and the other two countries is caused by their different viewpoints of how to evaluate organic farming: the Japanese government adopts the concept of economic sustainability while Korea and Thailand adopt the concept of capability sustainability. The aim of this paper is to discuss how to evaluate organic farming by using the two concepts of sustainability.

## I. Introduction

Development has been described as “a process of expanding the real freedoms that people enjoy”.<sup>1</sup> The same report also argued that “expanding the freedoms that we have reason to value not only makes our lives richer and more unfettered, but also allows us to be fuller social persons, exercising our own volitions and interacting with- and influencing- the world in which we live”.

These statements about development are very thought provoking. They indicate that there are many aspects to *development*. In this study, the focus will be on the development of organic farming. The aim of this paper is to discuss how to evaluate organic farming via two concepts of sustainability using the examples of three countries, namely Japan, Korea, and Thailand.

In the Japanese case, two development strategies for organic agriculture were investigated by studying one local organic group —environment-oriented and profit-oriented.<sup>2</sup> This is one of the examples to realize ‘functionings’. The concept of ‘functionings’ indicates ‘the various things a person may value doing or being’.<sup>3</sup> Also these functionings range from ‘elementary things as being adequately nourished and being in health to more complex achievements such as being happy, having self-respect taking part in the life of community’.<sup>4</sup> Of course, this is considered as the role of a group, which may be extremely important in promoting human capabilities and not as the ultimate goal of the promotion of the capabilities of each person.<sup>5</sup> Also this ‘capability’ indicates that “the

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<sup>1</sup> Sen (1999) p3, 14-15

<sup>2</sup> See Kim (2005), who has explored the two concept of organic agriculture by the case study of Japan in her master degree paper.

<sup>3</sup> Sen (1999) p75

<sup>4</sup> Sen (1992) p39

<sup>5</sup> Nussbaum (2002) p74

alternative combination of functionings that are feasible for her to achieve. Capability is thus a kind of freedom.”<sup>6</sup>

In the Korean case, the government supports a sustainable approach for organic agriculture. As Sabina (2002) said, Nussbaum’s ‘list’ of central human capabilities is a list of combined capabilities. To provide these capabilities, governments must attend to the development of person’s internal capabilities or powers, as well as to an appropriate enabling environment for their exercise-that is, to both material and social aspects. On this issue, the Korean government’s institutional efforts for environment-friendly agriculture are very good example of making farmers expand capability sustainability.

Finally, in the Thai case, to the study assesses individual farmers’ efforts to expand capability sustainability by showing the case of organic jasmine rice farming in Kalasin province of Northeast Thailand. This is another example of achieving functionings.

## II. Capability and Economic Sustainability

This paper deals with two concepts of sustainability, namely capability sustainability and economic sustainability. The former is generally referred to and defined in a broad sense to include environmental, social and human aspects, while the latter typically has a narrower definition and is widely used by economists, in other words economic viability. It is evident that capability sustainability is much more important than economic sustainability but the latter is still conditioned by the former: In other words, activities aimed at capability sustainability may not be maintained if they keep making a loss. This paper deals with evaluation of organic farming with regard to these two concepts.

This paper is based on my field research on organic farming in Japan, Korea and Thailand. Generally speaking, there are two types of organic farming: One is large-scale and profit-oriented, whereas the other is small-scale and environmentally aware. The economic sustainability of the former relies on a certification system for organic products, by which they can sell their products as organic in bulk to consumers in remote cities who are concerned mainly about their own health (the well-being aspects). However, some consumers are interested not only in their own health but also in the environment in which they live (the agency aspects). They prefer a face-to-face relationship with producers, who are usually the small-scale environmentally aware producers. This relationship is called

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<sup>6</sup> Sen (1999) p75

*Teikei* in Japanese (meaning partnership or affiliation). One problem of the small-scale farmers is that their profits are very small, or economically less sustainable. In the age of globalization, the economically sustainable (or profit-oriented) type of organic farming is growing while the environmentally aware one faces difficulties. The Japanese government does not promote the environmentally aware model because of the low profitability, even though it should be promoted from the viewpoint of capability sustainability.

In contrast, the Korean and Thai governments, as well as the King of Thailand, are actively promoting the environmentally aware system. The difference between Japan and the other two countries is caused by their different viewpoints of how to evaluate organic farming: the Japanese government adopts the concept of economic sustainability while Korea and Thailand adopt the concept of capability sustainability.

### III. Economic Sustainability: The Japanese Case

#### 1. Background of organic agriculture in Japan

The organic agriculture movement in Japan started in the form of *Teikei* as a sharing relationship between consumers who were very anxious about food safety and environmental awareness, and producers were concerned about the damage caused by modern agriculture in the 1970s.

In the 1980s, Japanese government considered introducing standards for organic products because of the problem of improper labeling of organic products by producers wanting to take advantage of the new organic market. In 1992, the Ministry of Agriculture, Forestry and Fisheries of Japan established guidelines related to labeling of organic products. In 1999, through a revision of JAS (Japanese Agricultural Standard), only organic products certified by a 3rd party system could be labeled 'organic'.<sup>7</sup> This standard was necessary for the large-scale producers to obtain consumers since there was no relationship such as *Teikei*, therefore it was advantageous for the Japanese companies and export sectors abroad.

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<sup>7</sup> For JAS and certification problem of organic agriculture, see Kubota (2001). See also Honjo (2004).

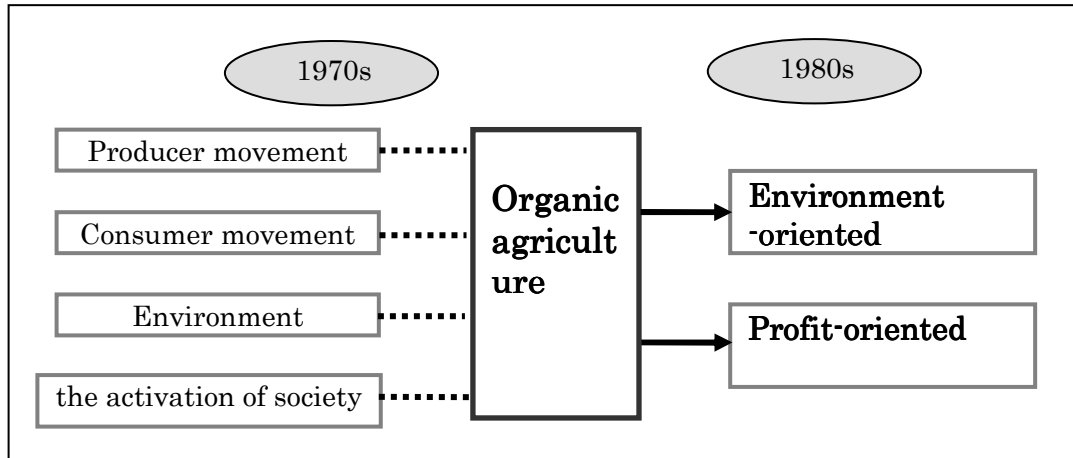


Figure 1 . Two types of organic agriculture in Japan

On the other hand, the small-scale producers who wanted to promote local recycling and sustainability were strengthening *Teikei* with their consumers instead of official certifying their organic products, since it cost too much time and money to get certification. This contributed to the separation of the word ‘organic’ from these small-scale producers’ products. In order to overcome this disadvantage, these producers strengthened cooperation with consumers more and more. Also other similar groups appeared such as the consumer groups which asked for safe food and environment-friendly agricultural products, the slow food movement, and animal welfare groups. These groups, which regarded agriculture as a very important part of their society where also involved in their local activities such as eco-money and town revitalization. Furthermore, these local producers show a great potential for contributing to major social changes. Organic agriculture is neither ‘a way to get rich quick’, nor ‘a leisure activity’. It occupies a very important position as a development of commercial agriculture, or a core mechanism for local activation.

## 2. Two types of organic agriculture

Organic agriculture can be roughly divided into two strands depending on the purpose. One is aimed at increasing efficiency by large-scale production and focuses on the broader-based market which also includes foreign markets using the organic certification system. This standard is extremely market-oriented and recently, has regarded organic agriculture as a big market for industrialized agricultural management, and these days there are many

new entrants.

The other standard is related to groups which focus on food safety or environment-consciousness and aims for independent society with local sustainable activity. Therefore, this group inevitably tends to be small-scale production through traditional methods in their local area, so that *Teikei* between producers and consumers is very important. Since it is based on the trusting relationship developed by solidarity with consumers, and so it is not necessary to get certification. The consumer movement and ecology movement can be seen widely in various places in Japan, and are closely in cooperation with this type of organic agriculture.

### **3. The concept of organic agriculture**

There are so many definitions of organic agriculture. First, it was considered by the definition of 'organic products'. According to Japanese Organic Agriculture Association<sup>8</sup> (1988), it was defined as 'Organic products indicate the things that did not use artificial chemical substances or medicines such as chemical fertilizer, agricultural chemicals, and radioactive materials, etc'. During the process from production to consumption, organic products were utilized by the resources of their own area as much as possible and they were produced by natural methods with their respective original productive capacities.

However, the definition of organic products is not necessarily replaced with organic agriculture because there are so many processes of organic agriculture. Organic agriculture has a very broad meaning. It is a movement as with various social activities seen not only in Japan but also another countries, such as the attitude of farmers to conventional agriculture, the life improvement movement concerned with independence of farm households, the consumer movement to demand safe food, the ecology movement on preservation of the environment and the activation of local society. Therefore it is very difficult to summarize the exact definition of organic agriculture.

However, one common feature can be found in all definitions of organic agriculture mentioned above. It is never special. It is just used as a local natural production method,

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<sup>8</sup> This association was founded in October 1971 as a non-profit voluntary organization. It consists mostly of producers and their consumers who want to develop and expand organic agriculture movement. It is exclusively funded by the membership fee. It is not subsidized by any government or corporation. It does not put any commercial advertisement in its monthly newsletter, and so stays independent in the economic sense.

recycling local materials and resources. Considering this viewpoint, the original concept of organic agriculture is based on local sustainability.

#### 4. Case study: ‘Ashigara NounoKai’

‘Ashigara NounoKai’<sup>9</sup> (shortened to ‘NounoKai’) in Odawara-city of Kanagawa prefecture is promoting organic agriculture to achieve a locally sustainable society. Field surveys have been conducted since November, 2003 through participating in the regular monthly meetings and visiting individual farmers. Information was collected by interviews.

##### (1) The Outline of ‘NounoKai’

‘NounoKai’ which is based on the idea of self-sufficiency in its own area was established in 1993. This group has been a Non Profit Organization since 2005. In this group, there are no rules or regulations regarding membership. Anyone who consents to activities and fundamental values (table 1) is able to participate. Numbers are increasing, and there are twenty-one individual farm households currently. In total there are over two-hundred members in eleven joint small groups, including consumers. Twelve of the twenty-one households sell their products and the other nine households only produce crops for themselves. There are eight joint groups for paddy farming, one group for green tea, and another two paddy farming groups are only just cooperating with ‘NounoKai’.

Table 1 . The fundamental values and principles for activities of ‘NounoKai’

Fundamental values	We will aid sustainable society in the Ashigara area. We contribute to linking suitable agriculture with public welfare. Citizens should adopt a new life style to benefit society and in turn receive benefits themselves.
Principles for activities	We aim to revive abandoned farmland. We will reduce fossil fuel and establish agricultural techniques which utilize natural power. We will propose and pursue a new self-sufficiency life style. We build a structure of reciprocity between citizens and farm households.

<sup>9</sup> It means the group (Kai) which expect to realize local circulation society as a life style surrounded with agriculture (Nou).

## (2) The structure and actual condition of ‘NounoKai’

### 1) The structure of ‘NounoKai’

There are six individual groups that exist under ‘NounoKai’. These six groups can be classified by four characteristics such as sale, interaction, technical development, and education as shown in Table 2.

Table 2 . Structure based on their activities of ‘NounoKai’

Characteristics	Group	Contents
Sale	Vegetable delivery group	Cultivation of vegetables by individual farmhouse and delivery to consumers in the Ashigara area
Interaction	Paddy farming group	Two-hundred members for self-sufficiency cultivation in three ha, in fourteen spots
	Tea group	Joint control and participation in 0.25ha and the practical use of abandoned ground
Technical development	Cooking group	The introduction of cooking methods for agricultural products in their area
	Agricultural technical research group	Technical research in rice, vegetable, poultry, and hog farming
Education	Study group of new entrants	Training for people wanting to start agriculture

First, the ‘vegetable delivery group’ is comprised of vegetable producers. They implement the delivery work and exchange opinions with their consumers. Eight of twenty-one individual farm households have participated in their total area of five ha. They deliver once or twice per week to 120 consumers. The items and number of organic products actually depend on producers, who basically cultivate seasonal products. Sometimes consumers order their favorite products, but this is not very common.

The ‘paddy farming group’, ‘green tea group’, and ‘cooking group’ which include not only the producers but also non-farming citizens interact a lot with the community. In particular, ‘paddy farming group’ and ‘tea group’ are based on joint work for the cultivated land of ‘NounoKai’ and share an experience with self-sufficient work also.

Table 3 shows the actual achievement of the joint paddy farming group in the 2004 fiscal year. Here, the two paddy farming groups that just cooperate with ‘NounoKai’ have been removed. There are eight joint paddy farming groups in the Ashigara area where the total area is three ha and they each have different agricultural technique. Members of each group also range from four persons of F to seventy persons of D. The harvest in 2004 was

also different ranging from 188kg (1,000 m<sup>2</sup>) of C to 860kg per 2,000m<sup>2</sup> of H.

‘Green tea group’ has 150citizens including individual farmers of NounoKai who cultivate in 0.25ha, of previously abandoned ground. Green tea picking was performed once a year.

Moreover, ‘agricultural technical research group’ is implementing agricultural technical development and ‘study group of new entrants’ is performing the education for the people who want to do organic agriculture.

Table 3 . The achievement of the paddy field group in the 2004(unit : 1,000m<sup>2</sup>, person, kg)

Group	Property	Participants			Yield	
		No.	Contents	No.	Contents	
A	2	22	R5family,A2,C5	836		
B	0.3					
C	1	9	R3,A2,C4	188		
D	2.5	70	R9team,A20team,C30	800	Regular rice 600kg,Glutinous rice 100kg, Two kinds black rice 90kg, Colored rice for admiration	
E	2	34	R7family,C4family	823	Kinuhikari649kg,Koshihikari60kg,Black rice34kg,Glutinous rice 80kg	
F	0.6	4	R4	244		
G	1.1	4	R3,A1	450		
H	2	40	R31,A4,C5	860	Kinuhikari510kg,Akinishiki350kg	

note 1 : ‘R’ and ‘A’ are regular members and associate members, and ‘C’ is cooperators in contents of participants.

note 2 : Yield is based per whole growing area except group G, which is based per 1,000m<sup>2</sup>

note 3 : Group B is out of this survey.

## 2) The activity condition of ‘NounoKai’

Figure 2 shows the relationships the individual group of Table 2. First, ‘NounoKai’ consists of individual farm households (‘A’ and ‘B’) and non-farming citizens (‘C’ and ‘D’) who are linked with ‘NounoKai’ as consumers or participants of their activities like a paddy farming group.

It is divided into 'A', 'B', 'C', and 'D' by whether it exists by the concept of self-sufficiency or not. 'A' which consists of the individual farm household for sale is the core producer in 'NounoKai'. 'B' only cultivates its own crops but not to sell. 'C' is a group which has participated in the joint activity in the concept of self-sufficiency. 'D' is only a consumer group without any joint activity. 'A', 'B' and 'C' are the main bodies in 'NounoKai' here, and 'D' is the group which will have the potential to participate in 'NounoKai' from now on. Moreover, it can be said that the distance from 'A' to 'D' shows the degree of participation in the implementation of organic agriculture. 'A' indicates the positive degree of participation in organic agriculture and it can be the level of selling of their products. 'D' which purchases organic products indicates the negative degree of participation in organic agriculture.

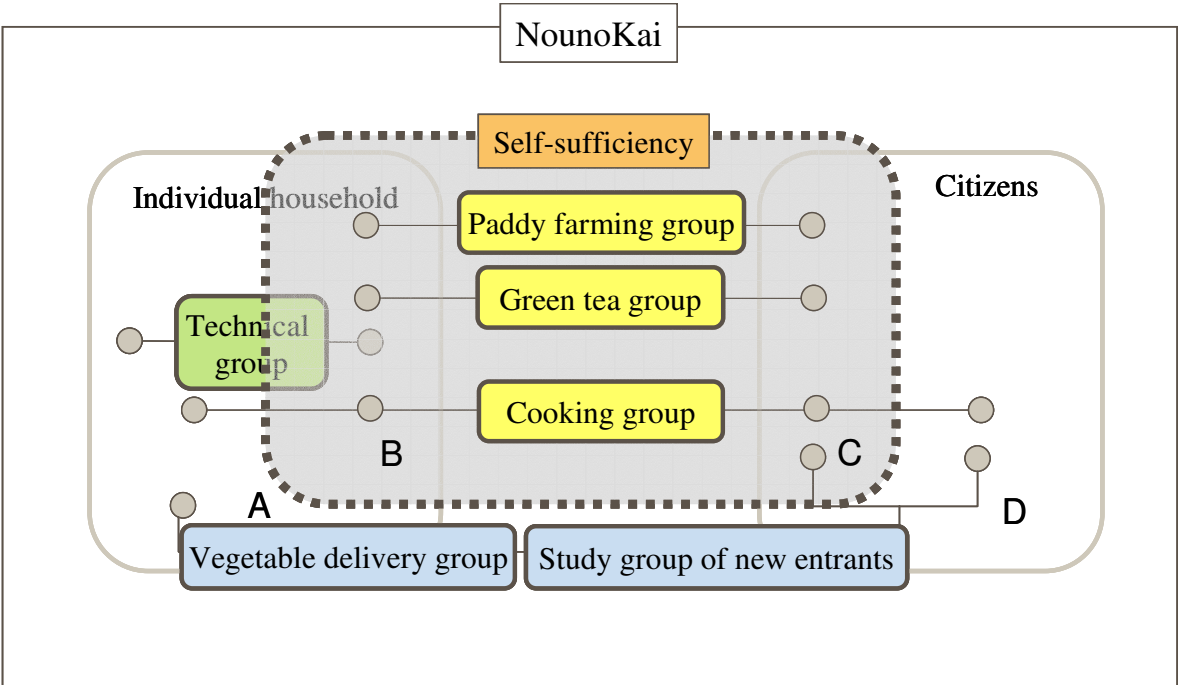


Figure 2. The activities of NounoKai

As for the activity of each group of 'NounoKai', 'paddy farming group' and 'green tea group' are making a deep relationship between the individual farm households and citizens with a sharing self-sufficient concept. 'Cooking group' gives the opportunity of interaction based on organic food. 'Vegetable delivery group' has a close relationship with its purchasers.

‘Study group of new entrants’ can give a training to people who want to practice organic agriculture. The numbers in this group are increasing and ‘NounoKai’ wants to make a training institute where it is possible to teach self-sufficiency in the future. Finally, ‘agricultural technical research group’ is carrying out advanced research, for example on the theme of weeding using rice bran. These two groups have important aspects and functions for those who are going to enter into organic agriculture and for internal organic agriculture producers.

### (3) The features of ‘NounoKai’

As mentioned above, the features of ‘NounoKai’ have been identified by its structure and activities condition of it.

First, ‘NounoKai’ is a trial for the local sustainable type of organic agriculture by individual farm households. Although there are different reasons to enter it, everybody shares a regard for organic agriculture such as a life style emphasis on safety of food and environment.

Second, the activities of ‘paddy farming group’ and ‘green tea group’ in connection with self-sufficiency function as a place where local residents such as individual farm households and other citizens can share their agricultural experiences. Furthermore, citizens as consumers can buy their organic products from ‘NounoKai’ with confidence, because they participate in the activities of ‘NounoKai’.

Through this process, finally, local social and agricultural diversity can be achieved. ‘NounoKai’ has a strong partnership between individual farm households and external citizens. Their consciousness and the methods of organic agriculture are different, but they are respectively accepted as various elements in ‘NounoKai’. Therefore organic agriculture can be practiced in various forms.

## IV. Capability Sustainability: The Korean Case

### 1. Environment-friendly agriculture in Korea

In Korea environment-friendly agriculture is one of the farming techniques to increase farm household income and pursue both environmental preservation and safety of agricultural products by inducing sustainable agricultural production under harmonization

between agriculture and the environment.<sup>10</sup> This articulation was established by the Korean government in 1997 when it enacted the *Environment-friendly Agriculture Promotion Act*, and then declared 1998 to be the starting year of environment-friendly agriculture. In Korea, the policy which encourages and promotes ‘environment-friendly agriculture’ is defined by law. In addition there are also several concrete support actions initiated in 1999, such as ‘Support for Building a Sustainable Agriculture Zone’, ‘Pilot Villages for Environment-friendly Agriculture’, and ‘Direct Payment for Environment-friendly Agriculture’.<sup>11</sup>

## 2. The beginning of organic agriculture: the 1970s~the 1980s

In Korea, organic agriculture began with the conscious efforts of farmers and civil groups in the mid-1970s. Typical examples are the Jeong-nong Group which is a producer organization with a Christian identity, and the Korean Organic Farming Association which was established in 1978 in order to stop the environmental degradation by conventional agriculture.

In the 1980s organic agriculture expanded and started to sell its products directly to consumers. The company Pulmuwon opened an outlet for organic crops in Seoul in 1981 and began to sell as good quality agricultural products. Also Hansalim, which is a typical organic agriculture group, opened in 1986 and started to sell eight items, including rice. On the other hand, Jeong-nong Agricultural Products Center was founded in 1987 with the aim of selling its own members’ products. The co-op was organized in 1999 well after the establishment of the other groups, thus the initiative for organic agriculture in Korea was spontaneous action by farmers.

## 3. Environmental problem: the 1990s

In the 1990s, there was a growing demand for conservation of the environment all over the world, beginning with such concrete examples as ‘Liu Environmental Development Conference’ as well as ‘Agenda 21’ for the subsistence of agriculture and rural development.

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<sup>10</sup> It is defined by Ministry of Agriculture and Forestry in Korea. Environment-friendly agriculture is one of the core businesses in Ministry of Agriculture and Forestry. <http://english.maf.go.kr/index.jsp>

<sup>11</sup> For Support for Building a Sustainable Agriculture Zone and Pilot villages for Environment-friendly Agriculture, see Heo (2000). For Direct Payment for Environment-friendly agriculture, see Lee (1999).

Following these initiatives, each country has performed several policies for sustainable agriculture by leading environmentally friendly agriculture.<sup>12</sup>

In Korea the phenol outflow incident in the Rakdong river in March 1991 stimulated great national concern about environmental problems. The Doosan Electronic which is a Korean financial clique disposed of thirty tons of phenol to the Rakdong river, contaminating the drinking water of fifteen million citizens. Around 1,620,000 citizens suffered direct damages, especially in Dae-gu city.

This incident explicitly reflected the poor ethics of social conditions which pursued only high growth, and the 'polluting industry' that was driven only economic efficiency. The attitude of the administration at this time was not enough to impose sanctions to stop the polluting factory due to the economic organization's pressure which related to the loss of electronic exports. However, awareness of environmental problem was raised nationally by this incident, causing a full-scale civic movement and environmental movement to be established. Moreover, it also initiated a changed perception in consumers where safety was valued in addition to price.

#### 4. Promotion of environment-friendly agricultural policy

As mentioned above, under the social conditions which pursued economic growth and efficiency, also controlled agricultural policy. At the start of the 1990s the main policy was to increase food production using chemical fertilizers or pesticides, and to consider only income based on large-scale farms. However, rising concern across the country about environmental problems caused agricultural policy to be gradually changed.

The leadership of the Minister of Agriculture and Forestry played a prominent role in the change of agricultural policy into 'environment-friendly agriculture'. In fact, at that time, there was quite large resistance from government officials and research workers in the Ministry of Agriculture and Forestry. However, gradually even those who opposed the policy came to approve it after the law was established.<sup>13</sup>

In 1991, the government established the Organic Agriculture Development Planning Board in Ministry of Agriculture and Forestry. In 1993, 'environment-friendly agriculture' was introduced into the Korean agricultural administration for the first time. In that year,

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<sup>12</sup> For this issue, see Huh (2000).

<sup>13</sup> See Adachi (2002).

Huh Shin-haeng (Feb. 26, 1993-Dec. 21, 1993) who was a very interested in 'environment-friendly agriculture' was appointed as Minister of Agriculture and Forestry, and he had a large influence on agricultural policy. The new Minister, who was a scholar, suggested four courses for Korean agriculture that should follow his book 'the 21st Century Strategy of the Korean Agriculture'. He proposed technical, high qualitative, sustainable, and export-oriented agriculture. It was his view that environment-friendly agriculture would become the central philosophy for the 21st century. In the same year the quality certification system for organic products was introduced.

Choi Yang-boo (Dec. 23, 1993-Feb. 24, 1998), who appointed the Chief of Staff of Agriculture in the Executive Mansion, continued the policy of 'environmental agriculture'. In 1994, the Environmental Agricultural Division was installed in Ministry of Agriculture and Forestry. In 1995 the Quality Agricultural-production Support System for Small-scale Farmhouse was established and targeted at promoting practical farming engaged in environmental agriculture. The Environmental Agricultural Policy for the 21st Century was initiated in July 1996, and then the *Environment-friendly Agriculture Promotion Act* in December, 1997.

In March, 1998, Kim Sung-hoon became the Minister of Agriculture and Forestry, and he implemented more concrete and full-scale measures for environment-friendly agriculture. In this time, the keyword of the agricultural administration was 'environment-friendly agriculture' and 'small-scale family farming'. Although environment-friendly agriculture was thought of as important in the earlier policy, it was based on competitive agriculture by scale expansion and expense reduction. Therefore 1998 was actually the first time that environment-friendly agriculture was evaluated as the 'non-market-value'.

Meanwhile, the Council for Farmers, Consumers, and Government were constituted aimed at a mutual understanding of environment-friendly agriculture in a sense of solidarity with one another. In addition, the policy of promoting Environment-friendly Agriculture was announced in November, 1998, and the Direct Payment System for Environment-friendly Agriculture was introduced in 1999. After the *Environment-friendly Agriculture Promotion Act* was revised, the Five-year Plan for Environment-friendly Agriculture was implemented in January, 2001.

These policies greatly promoted environment-friendly agriculture, and as a result environment-friendly agriculture, including organic agriculture, increased rapidly.

Furthermore it has made most farmers conduct more environmentally friendly agriculture.

## V. Capability Sustainability: The Thai Case

In order to study organic farming currently carried out in Kalasin province in northeast Thailand a mainly organic Agricultural Cooperative, including a rice mill and cow bank, and three organic agriculture groups were investigated.

### 1. Background of organic farming in Kalasin

#### (1) Agricultural Cooperative

The Agricultural Cooperative was established nine years ago by Thavorn, who is very famous Buddhist priest, for farmers who were suffering problems. In June 2006 the number of members had risen to 2,315 from an initial total of 104 people. Anyone who produces rice in the Esan area can join the cooperative, and even people from outside Esan can join if they agree with Thavorn's ideas. The cooperative employs five workers and it does not pay house rent since the building is owned by Thavorn. Although the main work is management of members, the employees also sell members' rice, seed, and organic fertilizer, distribute to the rice mill and conduct cow banks.

#### (2) Rice mill

The rice mill aims to keep profits for the farmers by maintaining an appropriate supply of rice and removing sales intermediaries who tend to manipulate exact quantities and prices. It was established by King's fund from Thavorn's idea to support farmers. It has played an important role in the wholesale distribution of rice, mainly jasmine rice. The rice which was bought direct from farms became goods in the name of this factory through crushing rice. This rice was distributed and sold at markets in Bangkok.

There was a quality test of rice before it is bought from farmers. If the moisture content is above fourteen percent the farmer has to find a market by himself. Although ordinary farmers can also sell jasmine rice, those who are members of the Agricultural Cooperative are paid thirty baht per ton additionally and the Agricultural Cooperative received fifty-three baht per ton. This money is then divided between the members at the end of a fiscal year. Recently about 1,500 of 2,315 members of Agricultural Cooperative use

this rice mill. About 4,000 of the 10,000 ton's of rice treated in a year by the Agricultural Cooperative was treated at this factory.

Brown rice was sold for about 0.1 baht per kg less than polished rice because of savings in electric power. In this case, the mark of environment-friendly products was attached from an electric power company. In Thailand recently it is easy to find such electric saving marks on various goods. This shows that environmental awareness is increasing in Thailand.

### (3) Cow bank

The support of Thavorn to farmers is not only limited to the Agricultural Cooperative and rice mill. Thavorn noticed that it was difficult for farmers to manage many cows. Therefore he started a 'cow bank' where a farmer would lend a cow to another farmer and later receive a calf from that cow in return. Therefore, since only the calf is returned, the number of cows in the 'cow bank' has increased gradually. The scheme has been running since 2000, and currently there are 1,930 cows. Moreover, this has a deep relation with support for the practice of organic farming since manure from the cows reduces the need to use chemical fertilizer.

A cow bank has a committee of five people, one policeman, one military man, and three farmers, who decide which farmer's turn it is to lend a cow. There are four following conditions to check; he or she has to be a member of Agricultural Cooperative, that they raise cows well, conduct traditional agricultural techniques, and the poor.

During the average ten years life of a cow, six or seven calves are born. A calf becomes an adult cow in one and half years, and for a farmhouse it is a very important property that can sell for 10,000 baht in an ordinary market. The principle of the cow bank is to return a female calf so that it can breed again. Those that need a cow have to submit a document to a cow bank, and take the calf from a man who lives in the same village. This contributed to reducing the expense and becoming a circulation function, and also allowed the original owner to watch calf growing up. This cow bank is already very large, and although there is also a cow bank nationally the influence of Thavorn is great, and he is going to spread such a system throughout other areas.

## 2. Organic farming in three groups of Kalasin

## (1) Organic farming practices

In this investigation, eight farmers were interviewed from three villages. Details of the organic farming practices in these three villages are shown in Table 4. The features are explored here.

There were some common situations across all three groups. The average age of the farm householders was around sixty years old, and even though there were four to five family members, only the main householder and his wife currently practiced agriculture. This indicated that the labor force was insufficient and aging. Moreover, except for two farmers, the income from agriculture was not enough so that they also had a store or raised livestock. They had very similar reasons for starting organic farming such as low cost, health concerns, soil fertility, and research into organic farming. Moreover, in this point, the King and Thavorn had a very strong influence for them. Difficulties related to organic farming were also quite similar, notably a lack of manure, water, and labor, and the absence of successors.

In Donyung village, organic agriculture had only occurred for two to five years, compared with twenty to forty years for conventional agriculture. Probably due to the lack of experience and considering the risk of organic farming, organic farming was only conducted in about a 1/3 to half of the paddy fields. In contrast to Donyung, two farmers in Nonsilaleng village had a very long experience of organic farming, for eight years, with an overall agricultural experience of about twenty to thirty years, similar to Donyung. Moreover, organic agriculture was performed in all the rice fields that they owned. In addition they made a pond of one rai from part of their land and practiced traditional integrated agriculture, which means several vegetables are cultivated around a pond and fish are raised in the pond for personal consumption. Furthermore, the farmers in Nonsilaleng made their own organic fertilizer as a group. Finally, two farmers in Donkang had only a very short experience of organic farming. Therefore they divided their land in half for organic and conventional farming, respectively.

Table 4. Details of organic farming practice in the three villages

Area	Ban Donyung				Ban Nonsilaleng		Ban Dongkang	
	A	B	C	D	E	F	G	H
Household	5	5	4	5	4	4	2	3
Family number	63	59	64	60	44	53	61	43
Age of Head Household	40	20	40	40	19	30	20	13
Period of agriculture(years)	5	2	4	3	8	8	2	3
Period of organic(years)	7	10	7	10	8	8	22	10
Property(rai)	5	5	5	5	0	0	11	5
Conventional	2	5	2	5	7	7	11	5
Organic					1	1		
Other	2	1	2	2	2	2	1+a	1
Labor	Cow5, shop	Cow3, shop	Nothing	Cow6, pig16	Post clerk, cow1, duck2	Cow2,pig20,duck10, chicken30	Nothing	Cow2
Other job	Low cost and health	Research	Influence of friend	Influence of Thavorn	Influence of the King and Thavorn		Soil health	Research and low cost
Reason of organic	Lack of manure and labor, and absence of successor				Nothing		Lack of manure and water	
Difficult point								

Note: Rai indicates 1,600m<sup>2</sup>

## (2) Comparison of organic and conventional farming

Table 5 shows a comparison of organic and conventional agriculture in these three villages. First, for conventional cultivation in Donyung and Dongkang, manure was always purchased from a private company. The price was eleven to fourteen baht per kg in Donyung, and nine baht in Dongkang. The application rate was different in Donyung and Dongkang. As mentioned before, this indicated the short experience of organic farming in Dongkang. In Nonsilaleng they did not buy any fertilizer.

For organic cultivation, organic fertilizer was purchased from the Agricultural Cooperative. Although the price was same as seven baht per kg, those who could not supply manure had to buy it. The quantity applied was different in each village. For weed and pest control, no chemicals were used except for H in Dongkang, where it was said that the awareness of organic agriculture was yet sufficient. In terms of harvest yields organic farming was better than conventional except for G. In particular, the two farmers, E and F in Nonsilaleng got twice the yields of other farmers because of double cropping in this area. The average price for conventional products was ten baht per kg, but the organic products could receive an average of two baht more, except for H.

A similar pattern of organic agriculture development was seen in each village. The farmers discussed their difficulties and shared information about various aspects of organic agriculture with other farmers in the same village. In some cases the reason for starting organic farming was the influence of friends. However, there were also some differences in terms of individual choices.

Table 5. Comparison of organic and conventional farming in three villages

Area	Ban Donyung				Ban Nonsilaleng		Ban Dongkang	
Household	A	B	C	D	E	F	G	H
Fertilizer								
Conventional								
Purchase	Private company				Not buy		Private company	
Price(B/kg)	13-14	11	11	11			9	
Quantity(kg/rai)	20	40	40	40			150	
Organic								
Purchase	Not buy	Coop			Not buy		Coop	
Price(B/kg)		7	7+M1000B /ton	7			7	7
Quantity(kg/rai)	M700	100+M400	100+M500	100+M500	300		450+M	
Weed	Nothing	By hand	By hand	Nothing	Nothing		Nothing	Herbicide
Pest	Nothing				Nothing		Nothing	Insecticide
Yield								
Conventional(kg/rai)	500	400	350	500			650	550
Organic(kg/rai)	700	500	600	500	1,400		450	550
How to sell	Coop				Coop		Coop	Market
Price								
Conventional(B/kg)	10				10		10	7.6
Organic(B/kg)	12				12		12	7.6

Note: F is organic fertilizer and M is manure.

## VI. Conclusion

This paper mainly dealt with the two concepts of sustainability in organic farming, that is capability sustainability and economic sustainability. The basis for considering this approach was Sen's 'expanding the freedoms' on his capability approach.

In the Japanese case, 'NounoKai' which consisted of diverse individual farmers showed the efforts to achieve their own functionings, which was sometimes consistent and sometimes inconsistent. The characteristic feature of 'NounoKai' was that they were respectively accepted as various individuals who had his or her own functioning (or

capability) even though being inconsistent. Furthermore, 'NounoKai' which was based on the same idea of self-sufficiency aimed to make a sustainable society, which was, however, maybe still varied. Through this process, above all, it was possible to find the concept of capability sustainability in 'NounoKai'.

The Korean case explored the background and process of the development of organic agriculture. Even though national consciousness in areas such as the environment was later than in other countries, the shift of Korean agricultural policies toward environment-friendly agriculture has contributed to the promotion and spread of environment-friendly agriculture. Substantively these policies played a prominent role to provide an environment to expand individual freedom. Moreover, it was possible to change such policies because the Korean government did not have a narrow view, such as that of economic sustainability, but instead the concept of capability sustainability.

In the Thai case, the spread of organic agriculture was not related to the lack of national consciousness of preserving the environment or safety issues between consumers and producers. In this case, the King of Thailand had continued to express the importance of sustainable agriculture and to promote several supports. In Kalasin, it was possible to see the individual farmers' efforts to achieve the capability by conducting organic agriculture. Of course, this was influenced in particular by Thavorn's supports. His idea was based on the idea of capability sustainability, and it was able to make a favorable environment for individual farmers.

These different concepts of sustainability, namely economic sustainability and capability sustainability have produced very different results in terms of development in organic farming. This is because organic agriculture is not exempt from the definition of development proposed by Sen, that it can be seen as 'a process of expanding the real freedoms that people enjoy'.

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