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SOCIOLOGICAL ASPECTS OF SUSTAINABLE AGRICULTURE AND ITS PRACTICE: THE KOREAN CASE

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ABSTRACT

The term sustainability is conceptualized as a having double meaning--inter-generational and intra-generational equity. Sustainable agriculture (SA) is also understood as a totality encompassing agricultural and rural development. Korean sustainable agriculture evolved since the late 1970s as a "movement" to restore the soil, undergoing rapid expansion in the 1990s. A few studies on Korean sustainable agriculture have indicated that the farmers in this field are younger and more educated, implying that the sustainable agriculture is a promising alternative farming technique. Consumers are also younger, better educated, wealthier, and very often from the

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countryside. A hypothesis is provided here about the existence of two types of SA farmers, the "movement type" and "business type" practitioners. The possible convergence between sustainable agriculture and sustainable rural development, and its necessity, is discussed and proposed.

I. Introduction

In spite of widespread concerns for the environment, in general, and safe foods, in particular, it is true that the practical aspects of sustainable agriculture are still in the early stages of development in Korea. More and more agricultural producers are experimenting and participating in low-input farming, either for money or for realizing one's philosophical belief. Scholarly works with titles including words like "sustainable agriculture" or "environment-friendly agriculture" are frequently found in academic publications. Hundreds of billions of won in governmental budgets were planned to subsidize, and invested in low-input agriculture in 2001 alone (Ministry of Agriculture and Forestry 2001).

Those who produce the low-input agricultural products, including organic, are still no more than just one percent, however, and the agricultural land areas with low or no inputs are even smaller. The state's programs and initiatives are sometimes criticized as "too far ahead" of farmers' readiness to accept the new low-input agricultural "techniques." Many consumers in supermarkets do not even know what the organic foods mean. Overall, the need to produce enough foods to feed not only 47 million South Koreans but also starving North Koreans, and to prepare for a possible international food war, (which is represented by the word, food security), still constitutes the cornerstone of Korean agriculture.

This paper intends to focus upon the sociological aspects of Korean sustainable agriculture in practice. These "sociological" aspects cover a very broad range of topics. In light of the short history of Korean sustainable agriculture and the even shorter

period of academic attention to this field, the paper limits its focus to the following few points:

- (1) Conceptual aspects of sustainability and sustainable agriculture (SA)
- (2) Historical development of Korean SA
- (3) Development and characteristics of SA organizations
- (4) Socio-economic characteristics of SA farmers and SA product consumers
- (5) Ideal or typical distinction of farmers practising sustainable agriculture, and a development strategy for rural economy and society through the convergence of sustainable agriculture and rural development.

II . Conceptual aspects

1. Inter-generational and intra-generational equity

Since the latter half of 1980s, the concept “sustainable development” has begun to be accepted as the feasible way of development for humans living in and depending on nature. However, sustainable development has now found itself at the center of hot debate since becoming more popular. At the risk of oversimplification, two sets of arguments are presented below.

The first one is original understanding of the sustainability or “environmentally sound and sustainable development.” The well-known Brundtland Report, titled “Our Common Future”, represents this approach. The report defines the sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”. This conceptualization of “inter-generational equity” urges people not to exploit excessively the resources available to the present generation, as they are what those now living have borrowed from future generations. It also reflects a deep concern about depletion of the renewable resources such as forests or marine life. The lawsuits proposed against lumbering forests in

the Philippines in 1990, and against the Saemangeum reclamation in Korea last year, in which the plaintiffs were the future generation--young children--are a typical example of the generational equity argument (Park 2001).

Another set of people has concentrated on the distributive effects of development itself. The above conceptualization of sustainability "avoided attributing responsibility for environmental problems and avoided an analysis of the source of those problems", according to them, and rather, inequality, poverty, world monopolization and so forth need to be seen as the source of those problems (for instance, see Murphy 1994). The sustainability, therefore, needs to be guaranteed not only from the perspective of production and resource exploitation, but also for the sake of human subsistence. Such "intra-generational equity" arguments are based on that understanding that development taking into consideration social justice and distribution would be sustainable for the majority of people experiencing serious poverty and in need of basic food and shelter. It is well known that poverty drives the poor to excessive exploitation of earth's resources that are left as common goods. Further, in that the high-energy consumption societies, mostly developed countries, have benefited from their preoccupation with world resources, the sustainability will be secured when there is wise spatial reallocation and use of resources. Tangled with the so-called Green Round or global trade war, this argument has backed up the stance of most developing and underdeveloped countries.

2. Agricultural Sustainability

2.1. Nurture vs. nature

Agriculture has, since humans started living in settlements, long been the primary activity to obtain foods for living. The agricultural eco-system differs from the nature in that humans destroy, deform, transform, that is, "cultivate," and "domesticate" nature in their own ways and for their own benefit. Nature is "tamed"--biological simplicity and homogeneity are preferred to

diversity (Choi 2000). As the need for agricultural production increases, new external materials are devised and become part of the production process, such as agricultural machines and fertilizers, including chemicals.

However, modern types of agriculture rely on heavy amounts of external inputs exceeding the carrying capacity of the agricultural eco-system as well as nature. Agricultural activities, once having been based upon coexistence and reciprocity with nature, became threats to the air, water, soil, animals, insects, and humans as well. In spite of the rational and efficient modern agricultural technologies, excessive concentration on the increased agricultural production regardless of its impact upon the environment and nature has proved “irrational” because of its unsustainability (Murphy 1994). The conflict starts between the “nature” and the “nurture”.

2.2. Comprehensiveness of Sustainable Agriculture

As far as the conceptualization of sustainability includes not only the ecological aspects but also the social or intra-generational equity, the agricultural sustainability also needs to be extended to cover various aspects surrounding agricultural activities. According to Kwon (2000), the agricultural sustainability has six aspects. The first is economic sustainability in which the agricultural production system should be economically viable. Secondly, there is consumptive sustainability in which safe foods need to be supplied to consumers. The third one is productive sustainability in which the agricultural production does not destroy but lessens any pressures on the environment. Besides the above three, the fourth one is the maintenance of ecological balance through sustainable land use system. Fifthly, through the four sustainability aspects above, the sustainability of secure rural community itself is required. And lastly, agricultural sustainability includes the re-establishment of symbiotic relationship by mutual dependence among human, agriculture, and the nature. He makes clear that the sustainable agriculture does not just mean the adoption of some environment-friendly agricultural techniques like

organic agriculture. Rather, it means to him the pursuit of “a circular, comprehensive, and organized strategic system based upon the region-specificity” (124).

The discussion on the SA above shows that the SA needs to be understood with a systemic and comprehensive approach to agriculture and the environment. It means that the SA is not a special technique for agriculture applied to some agricultural production processes. Rather it extends beyond the generational sustainability of agricultural production in an economic sense. The SA can be achieved not by just reducing chemical inputs from outer world, for instance, but by enhancing the possibility of sustainability of the rural economy and society together, which will be discussed in the last part of this paper.

III. A Brief History of Korean Sustainable Agriculture

The historical evolution of Korean sustainable agriculture would be better understood by dividing it into three different phases (see Gim and Heo, 1999).

1. Pioneering Phase

In many European countries, the switchover to sustainable agriculture (SA) was the result of surplus production ensued by the “linear production” to which excessive chemical inputs have been major contributions. Since the introduction of the European Common Agricultural Policy (CAP), those countries have systematically diverted their subsidies to organic farming, including the reduction of the number of livestock (Haccius 1998).

Sustainable agriculture in Korea, however, has different origins. Decades of the drive for industrialization in Korea since the 1960s demanded cheap agricultural products and high productivity, which in turn forced the farmers to use heavy amounts of chemical inputs. To produce enough amounts of foods in general, and rice in particular, had long been, and still is, the top priority in agricultural policy. Some farmers began to

worry about the harmful impacts of the input-oriented agriculture on the environment and human health. A good example was an accident that involved rice farm family members in Damyang, Jeonranam Province, in 1978, who had used large quantities of chemical herbicides on their farm.

A few organic farming clubs began to emerge in the latter part of the 1970s, including Jeongnong-hoe in 1976, and the embryonic form of Korea Organic Farming Association (KOFA) in 1978, meeting the rising demand for low-input foods. As their attempts at sustainable agriculture had been in direct opposition to the state's production drive, the pioneers were sometimes under government surveillance or inspection (Jung 2000, Jo 2000). In the decade of 1980s, however, public concerns for health and safe foods helped the number of organic farmers to increase to reach about 1,400 households. Despite the change of public understanding and the increase of organic farmers, practical and theoretical conceptualization of sustainable agriculture (SA) and any governmental commitments were yet to be made (Gim and Heo 1999).

It is evident that the SA in Korea had been started by small groups of people with the ideals of organic farming using nature-originated inputs. The motives of these people were rather more philosophical or ethical than economical, and the procedures, which they adopted, were rather a movement than a business. In this sense, the first phase can be characterized as "movement type SA".

2. Institutionalization Phase

Environmental accidents, occurred at the turn of 1990, for instance, the phenol leakage from an electronic factory into the Nakdong River in 1991, contributed to the rising social concerns for the environment and sustainability in producing foods. The socio-political environment forced the government to create a public agency, "Planning Body for Development of Organic Farming," in 1991 under the Ministry of Agriculture, Forestry and Fishery, the former organization of the Ministry of

Agriculture and Forestry (MAF). It was a key sign that the sustainable agriculture has been incorporated into a policy domain of the state. The environment-friendly agriculture was conceptualized as: "the sustainable agricultural form in which agricultural environmental conservation and the productivity are harmonized by promoting soil fertility through resolution of organic matters into soil, and by restraining *as much as possible* the use of chemical fertilizers, pesticides, and herbicides through rational planting systems" (Suh et al. 1996, 14, italics added).

The conceptualization showed that it incorporated both organic farming without any chemical input, and conventional farming with low-inputs. First national surveys were conducted among the organic farmers in 1991, and a quality certification program for the SA products was introduced in December 1993. In 1994, the state created a section responsible for sustainable agriculture in the Ministry of Agriculture and Forestry, and in 1997 the Korean National Assembly passed the "Environment-friendly Agriculture Act." There had been major differences surrounding the definition of environment-friendly agriculture. One side argued for the adoption of a strong definition in which the organic farming (chemical free) was the core of governmental support. The other side maintained a weak definition that accepted such SA agricultural technologies that tried to harmonize the economic benefits of agricultural production and environmental protection as integrated pesticide management (IPM) and integrated nutrient management (INM). Finally, the weak definition was adopted and a long-term plan was set up in 1996 for SA in the 21st century, aiming to be firmly established by 2010. The state declared 1998 as "the Commencement Year of Environmental Agriculture" which symbolized a more active governmental commitment to SA.

In parallel with the speedy institutionalization of SA in the governmental sector, the number of people who farm in environment-friendly ways has rapidly expanded. For three years between 1996 and 1998, the number of organic farming households almost doubled and the area covered by SA farming

increased about 1.5 times. Many governmental subsidy programs helped conventional farmers to turn to low-input agriculture for economic reasons. Salient among those programs are the Production of High Quality Products Program by Medium- and Small-sized Farms, Creation of Environment-friendly Agricultural Area Program, Formation of Exemplar Village Program Practicing Environment-friendly Agriculture, Direct Payment Program for Environment-friendly Agriculture, etc.

3. Transitional Phase

With the launch of the WTO, the prospects for the global food trade are improving in the new century. The world trend toward globalization has affected the SA sector too, and forced Korean SA farmers and the government to enter a new phase. The Korean government revised the "Environment-friendly Agriculture Act," and subsequently detailed ordinance and regulation effective on July 1, 2001, which tried to modify the certification system to correspond to the international standards of organic farming. The Codex Alimentarius Commission (Codex), an organization jointly established by the Food and Agriculture Organization (FAO) and World Health Organization (WHO), very recently created guidelines for organic production of foods. Even though they are just recommendations for the member countries to adopt, it is almost certain that they will become "codes" to observe by organic food producers and processors.

Following the international standards, the new legal system modified the certification scheme in a stricter way, which will significantly influence SA food producers. It is not for certain to what extent the organic food trade will affect the Korean SA, but the new international environment and subsequent changes in legal system are pushing the Korean SA to enter a transitional phase.

IV. Development and Characteristics of SA Organizations

As early as the late 1970s, a few farmers' organizations aiming at

organic farming emerged, and since then many SA farmers got together to help each other in production, marketing, or both. Some of them are described below.

1. Jeongnong-hoe (Right Agriculture Club)

The Jeongnong-hoe, a quarter-century old organization, was created by 40 Christian farmers who were concerned with organic agriculture (Won, 2000). More than 500 SA farmers are members today, and it still exists as a Christian SA organization. The Poolmuwon Farm, its affiliated farm located in Hongseong, Chungcheongnam Province, is famous for the organic rice produced by the so-called "Duck Agricultural Technology"--ducklings are put in the rice fields during rice planting season so that as they grow they weed the fields and fertilize the soil.

2. Korea Organic Farming Association (KOFA)

The KOFA, one of the oldest SA organizations in Korea, was established in 1978 under the name of "Research Group for Organic Farming". It has been evolved from a small group to become a national association having about 26,000 members as of early 2001 (www.organic.or.kr). Its establishment was of significance in that the initiators studied and implemented organic farming methods in the period of the industrialization drive and high input agricultural production of the 1970s. Its definition of organic farming includes the banning of all chemical fertilizers, herbicides, insecticides, and growth regulators, and instead allowing only natural materials such as organic matters, natural minerals, and microorganisms. Main activities include education and training of farmers indoors and outdoors, supply of organic farming materials to the farmers, sales of organic products at some designated stores to the general consumers, and so forth.

3. Natural Agriculture Association (NAA)

Since its reshuffle to become the current national organization in 1986, the Natural Agriculture Association has about ten thousand members. The core argument of NAA's agricultural technology is

that input materials should obtain from within-region soils and microorganisms in them, which are called "aboriginal microorganisms". Sawdust and microorganisms are supplied in the pigsty to become fermented for feeding the hogs. One of its mottoes for farming is that "you can find the required materials from your place." The organization currently tries to create an affiliated corporation exclusively undertaking marketing and sale of natural foods.

4. Heuksalim (Soil Vitalization) Research Institute (HRI)

The Heuksalim Research Institute, a ten-year-old organization, distinguishes itself from other organizations in that it not only researches and develops environment-friendly agricultural inputs, especially the micro-organic materials, but also produces and sells them under its own registered brand to the member farmers (www.heuk.or.kr). The main activities of the HRI are research, development, distribution and sale of organic inputs, education of sustainable agriculture for the members, farming beginners and children, publications of periodicals, and so on.

5. Hansalim (One/Same/Big Life)

The Hansalim started with the background of urban-rural community movement in the late 1980s. Initiators include some anti-government activists, including famous writers and Catholics in the countryside. Their objectives are to restore the earth by which the nature and humankind can co-exist conforming to the general order of the Saengmyeong, or Life. Producers and consumers are directly connected through the membership (www.hansalim.or.kr). About 400 producers and 25,000 consumers participate in the activities.

6. Characteristics of the SA organizations

Almost all SA organizations include in their activities the sale of products produced by member farmers. The patterns are, however, somewhat differentiated. Jungnong-hoe and Hansalim supply the products to those who have membership of each organization, and refrain from selling them at the general mart,

for instance, supermarket. With this pattern producers may be able to reduce distribution and display costs, meaning less expensive products to the consumers and higher profits to the producers. Such a direct linkage, however, has fundamental limitations in that mass distribution through big mart is impossible. In that sense, these organizations are more interested in the spiritual mental or religious affiliations between the producers and consumers.

The other pattern is to sell the products at some shops or stations aiming at general as well as member consumers. The KOFA, NAA, and Heuksalim display their products at some shops or organizational affiliates for the sale only. To have shops or separate organizations is in most cases very costly for the organizations, but will be helpful in expanding and extending consumption of their products.

V. Socio-Economic Characteristics of Producers and Consumers

1. Producers of SA Foods

Despite the fast growth of Korean sustainable agriculture, statistical achievements of SA are still not impressive. The number of farm households, which have either acquired governmental certificates or declared that their products were produced in environment-friendly ways observing governmental guidelines, have increased substantially. The former type of households, however, occupies a mere 0.16% of total farms, and the latter type 1.32%, totaling 1.48%. The size of land covered by these households is, also, very small, indicating that the declared area is 0.75% of total cultivated area, and even combining the area with the lands with certificates would not increase the percentage to over 1%. Eighty-one percent of the lands are cultivated with low chemical herbicides and insecticides, and only 19 percent are cultivated in organic ways or with no herbi-/insecticides (Tables 1 and 2).

TABLE 1. Number of households and sale amount by sustainable agriculture

		1994	1995	1996	1997	1998	1999	2000	% ¹⁾
Certified	number of households	32	162	798	1,020	965	1,263	2,271	0.16
	sale amount (M/T)	909	2,047	5,467	11,058	24,265	27,642	27,125	
Declared	number of households	n.a.	n.a.	n.a.	n.a.	n.a.	13,764	18,300	1.32
	sale amount (M/T)	n.a.	n.a.	n.a.	n.a.	n.a.	209,334	278,052	

Note: * Proportion as compared to the total farm households.

Source: Ministry of Agriculture and Forestry (2001).

TABLE 2. Area declared to produce SA products by kinds

Unit: ha

	Total	Cereals	Vegetables	Fruit	Starchy roots	Special products	Others
Total	14,235	7,879	3,147	2,154	685	146	224
Organic ¹⁾	704	268	297	67	38	9	25
No herbi-/insecticides	1,932	789	760	124	94	92	73
Low herbi-/insecticides	11,599	6,822	2,090	1,963	553	45	126

Note: 1) "organic" includes products under transition to organic.

Source: Ministry of Agriculture and Forestry (2001).

TABLE 3. Age and educational level of SA farmers (%)

	SA farmers		Farmers in general (1995)
	Kang and Jeong (1999) N = 155	Yang and Lee (2000) N = 88	
<i>Age of head of household</i>			
30's	13.5	12.5	8.9
40's	40.1	34.1	18.2
<i>Formal education</i>			
Less than or equal to 12 years	43.7	39.8	13.7
More than 12 years	17.7	21.6	2.4

Sources: Kang and Jeong (1999), Yang and Lee (2000), MAF (1995).

In Korea, a systematic and detailed investigation into the socio-economic characteristics of the farmers who produce SA foods has not been made to date. In spite of this, there are studies which show, although in a descriptive manner, quite consistent results (Table 3).

The SA farmers are usually younger and more educated than other high input farmers. According to Kang and Jeong (1999), more than a half of SA farmers who responded to the survey are in their 30s or 40s (53.6%). Yang and Lee (2000) also report that these two age groups comprise 46.6% of the surveyed farmers cultivating vegetables or fruits in environment-friendly ways. Considering that the percentage of farmers in their 30s and 40s is 22.3% of total heads of farm households in Korea, it can be safely said that the Korean SA practitioners are rather young. More often than not, the younger age and higher education traits are closely associated. The two surveys above report that, of the surveyed SA farmers, more than 60% have received formal education of high school or above. This is a very high level of schooling and contrasted with the general level of education received by Korean farmers.

The above-mentioned social characteristics of the SA farmers have important implications for Korea's sustainable agriculture. The current SA in Korea would not be a "traditional" agriculture using the "primitive" level of technologies of the past. Assuming that the younger and/or more educated people are more willing and ready to accept new technologies, practices, ways of thinking, life style, and so forth, the low-input agriculture of today should be understood as a quite advanced farming mode which some promising farmers accept.

Some of the SA practitioners are very progressive and full of entrepreneurship, qualifying them to be selected by the state as excellent farmers. The Korean Ministry of Agriculture and Forestry (MAF) picks out and awards annually the so-called "new knowledge farmers" as role models for other farmers. They are thought to create extraordinary values added utilizing creative knowledge in their own agricultural sectors irrespective of their

TABLE 4. Awarded SA farmers

Awarded year	Age	Educational level	Major farming
1999	32	college	vegetables
	36	college	hog
	41	high school	rice, hog
	41	high school	hog
	46	college	sweet persimmon
	46	high school	hog
	48	high school	hog
	49	unknown	rose
	51	high school	grape
	55	primary school	rose
2000	40	high school	rice
	43	college	pear
	44	college	milk cow
	51	high school	miscellaneous cereals

Source: Regrouped by author using data from <http://www.maf.go.kr>.

educational achievements or any kinds of license. Many of these exemplary role models proved to exercise environment-friendly ways of farming: 10 out of 78 in 1999, and 4 out of 13 in 2000. Among these fourteen people, twelve had graduated from high school or college, and nine were in their 40s (Table 4, <http://www.maf.go.kr>).

2. Consumers of SA foods

Not unlike the lack of studies on the characteristics of producers of SA foods in Korea, there are rare sociological studies, which try to reveal the socio-economic characteristics of SA product consumers. A few agricultural economists, however, have attempted to figure out the features of those who had purchased organic or low-input products, introducing some practical results.

A study by Suh and others (1996) indicates that the possibility of purchasing organic or natural foods is high among the young ones, and those who had lived in the countryside consume them more than those from the city areas (Table 5).

High- or medium-level income earners, too, prefer natural foods (at 90% confidence level). Although not being statistically significant, educational attainment is also a factor having positive association with purchasing natural foods.

Quite similar results are obtained through other researchers' analyses, that is, the positive associations between the income, youth, and education on the one hand, and the chances of buying low-input foods. According to Yoon and Park (2000), and Oh and others (2001), it is more probable that consumers with high incomes, young ages, and high educations are more inclined to buy foods produced in environment-friendly methods (Table 6). Unlike Yoon and Park (2000), however, the analysis by Oh and others (2001) shows that the number of children negatively affects consumers' preference for SA foods. The contradictory results may be attributed to the following two aspects; on the one hand, consumers have more and more concerns about the health of their children as the family size gets bigger, and on the other hand, bigger family size may inhibit them from buying high-priced SA foods. Closer analysis will be necessary in this respect.

The study by Oh and others also reveals that those who have grown up in the countryside consume more SA foods than those from large cities, and more exposure to the advertisements for SA foods also affects consumers' behavior in a positive way. It provides the hypothesis that, as one's experience of natural life

TABLE 5. SA product consumers' socio-economic characteristics (1)

Variables	Coefficients	t-values	Prob $ t \geq x^2$
Constant	1.4918	0.831	0.406
Age	-0.0648	-2.071	0.038
Education	0.1142	1.545	0.123
Medium-level income ¹⁾	1.025	2.639	0.008
high-level income ¹⁾	1.011	1.880	0.060

Note: 1) Dummy variables with low-level income = 0.

Source: Suh et al. (1996).

or exposure to advertisements increase, so he or she becomes less reluctant to buy the SA foods. It may be because of the expansion of knowledge and understanding on the safety and soundness of the foods.

In spite of estimates with poor statistical significance, the above survey results are quite consistent with general presuppositions. Scholars argue that those who belong to the "new class," typically those with high levels of education and white-collar occupations, are more willing to accept environmentalism, while age places negative effects on environmentalism (Mertig and Dunlap 2001). Supporting the argument, the above surveys show that relatively younger aged people, who are often more educated, tend to easily accept the "unconventionally produced" foods which is rather an unusual way of dieting. There is no doubt that those with sufficient incomes have broader range of choice of foods, and so the chances of picking up SA foods in markets will increase. However, it remains for a future study to

TABLE 6. SA product consumers' socio-economic characteristics (2)

variables	Yoon and Park		Oh et al.			
	coefficients	P> ²	rice		vegetables	
			coefficients	t-values	coefficients	t-values
constant	-1.4211	0.2769	1.91824	0.92149	-0.262321	-0.14877
income	0.00693	0.005	0.15739	0.46467	0.506858	1.62739
age	-0.00542	0.7717	-0.03640	-2.12999	-0.038774	-2.33166
education	0.0496	0.4307	0.11135	1.78273	0.006260	0.10661
no. of children	0.1393	0.4845	-0.24463	-1.16217	-0.036056	-0.20700
growth place ¹⁾	-	-	-0.79172	-4.76332	-0.232225	-1.55870
exposure to advertizement ²⁾	-	-	-0.31342	-1.03897	-0.145908	-0.50448

Note: 1) Small town is coded low number.

2) Negatively coded.

Sources: Yoon and Park (2000); Oh et al. (2000).

examine the socio-economic characteristics of SA product consumers, which would help establish strategies in expanding the SA foods market.

VI. Discussions

It would be fairly helpful to typify the sustainable agriculture practitioners in Korea to understand their sociological characteristics, and a hypothetical distinction is presented below:

1. Types of SA producers

Suh et al. (1996) classify the SA farmers into four categories. They are named as "Religious and naturalistic," "Technology-based," "Tourism-combined agricultural," and "High value-added" types. The classification conceptually shows different types of approaches to the sustainable production technologies, major objectives in performing the sustainable agriculture, the kinds of chief agricultural products, etc.

TABLE 7. Farmers' approaches to the SA

Types of farmers	Approaches
Religious and naturalistic agriculture	thorough organic method; large varieties and small quantity production; rotation and crop-mixing; agriculture-first principle
Technology-based agriculture	better productivity with environmental protection; food safety; quality improvement; active adoption of new inputs and technologies; low-input agriculture; concentration on the same kind crops
Tourism-combined agriculture	SA for tourist agriculture; image-making
High value-added agriculture	food safety-, high quality-, and high income-orientation; low input agriculture; concentrated production on a few crops

Source: Suh et al.(1996, 19).

Based on the description of the short history of Korean sustainable agriculture and the characteristics of producers at the previous part of this paper and Suh et al.'s typology (1996), we can say that there exists some differentiation among the SA farmers at least analytically. Historical evolution and differentiation of SA would make it plausible to distinguish two ideal types of SA farmers. The typology below should, therefore, be understood as rather hypothetical, and to be tested by further empirical studies.

One is "movement type practitioners" who had started the SA for some ethical or religious reasons (Choi 2000, Jeongnong-hoe 1995). Relatively early SA practitioners have pursued the revitalization of soil and natural production of foods on the basis of their belief in the living nature. Sometimes they have formed communities--either geographical or spiritual--among themselves or with urban people having common ideals on nature, life, and so forth. Ideally, they do not care too much (or at all) for profits from what they have produced, and focus themselves more upon direct sale to consumers than on mass marketing at a large shop. Organic farming is considered as an alternative to conventional farming, implying negative responses to the commercial agriculture's plunder farming and even to the predominant maximum production principle. Instead, the principle is to preserve and conserve living organisms including soil, nature and humans. In that sense, it is a "new life movement" (Jeongnong-hoe 1995). Jeongnong-hoe or Hansalim will be good examples. The organic method of farming has been adopted as an individual or collective "escape" from "the general criticism of agriculture's environmental problems" (Michelsen 2001, 16). Therefore, this is, as Michelsen describes, "a social movement expressing criticism of mainstream agriculture in an attempt to develop and reproduce a "counter" to the dominant discourse within mainstream agriculture" (Michelsen 2001, 7).

Table 8 shows that the economic consideration is not the most important factor that motivated the farmers to adopt SA. Meanwhile, non-economic considerations such as production of

TABLE 8. Motives for beginning SA

	safe foods	environmental concern	higher prices	religious belief	other reasons	total
Number	68	55	13	13	6	155
%	43.8	35.5	8.4	8.4	3.9	100.0

Source: Kang and Jeong (1999, 63).

safe foods, reduction of environmental contamination, or religious beliefs were what they said main reasons for their adoption of SA.

Another type of practitioner would expect to find a way out of economic difficulties by turning to the SA. It is a kind of earning opportunity when general environmental concerns are escalating and more and more consumers prefer organic foods which are usually more expensive than conventional ones. Although still being minority within the rural community, these "business type practitioners" have managed to enjoy governmental subsidies, and could be less isolated compared to the above type of farmers. When assuming further linear expansion of sustainable agriculture in the future, they may well be called "early adopters" whereas the lonely "innovators" belong to the previous group of practitioners, borrowing the adoption/diffusion model's terminology (Padel 2001). The attempt to create a subsidiary company for marketing and sale of natural foods by the Natural Agriculture Association (NAA) may be an indication of the expansion of business activities of the members.

As no sociological study has been performed on the socio-economic characteristics of SA practitioners of Korea as mentioned earlier, it is for now impossible to exactly know the reality of each type, and it remains to be seen in the future research.

Despite these differences, however, it is quite reasonable to say that both types of farmers have strong motivations to practice environment-friendly agriculture. They enthusiastically participate in technology education and training proposed by SA associations (Suh et al. 1996). In many cases, the farmers apply

the SA technologies to their own farms and form various kinds of networks to share information and knowledge.

2. Sustainable agriculture and sustainable rural development: possible convergence?

Besides the three aspects of the sustainable agriculture--the economic viability, safe foods, and environment-friendliness, the concept of sustainable agriculture includes an aspect that has been omitted from many discussions. It is the sustainability of secure rural community itself and, through it, the re-establishment of a symbiotic relationship among humans, agriculture, and nature (Kwon 2000). The sustainable rural development may play a key role in the realization of "intra-generational equity" in that it incorporates the concomitant improvement of human welfare in the rural community and natural conservation.

It has been argued that the convergence between sustainable agriculture and sustainable rural development can be progressively processed, as the two are closely related with each other based on the following four cornerstones: innovation, conservation, participation and integration (Pugliese 2001).

First, as to innovation, the SA farmers are in most cases, as shown above, either "innovators" or "early adopters", as organic or sustainable farming is itself an alternative way of farming compared to the conventional methods. It is not so much a technology-intensive as information-based agriculture, and the farmers usually adopt unconventional marketing such as direct sales, which directly link the rural producers and urban consumers. The sustainable rural development can be propelled through such innovating forces of the SA farmers, as they provide the community with vitality and animation.

Second, as to the conservation, sustainable agriculture basically tries to use and enhance local resources, conserving the natural specificity of the region, which means minimal or no use of inputs from external sources. The sustainable rural development will make it possible to conserve those local distinctive features, which are also excellent resources for local

cultures, recreational activities, natural beauties, and amenities.

Third, as to the participation, sustainable rural development is attained by "a bottom-up approach, through a participated and sustainable use of local endogenous resources" (Pugliese 2001, 113). It inspires the local people self-confidence, partnership between leaders and actors, entrepreneurship, solidarity, voluntary efforts, etc. These attitudinal features help the farmers to manage the challenging sustainable agriculture. Collective initiatives through participatory activities make it easier to form "organic networks" which are essential for the successful production and marketing of SA products.

Last, as to the integration, sustainable rural development involves multi-sectoral enhancement and realization of local potential. Centering upon the farming as the key economic activity, diverse sources of income and employment can be created such as agricultural or green tourism, agricultural craftsmanship, and agricultural industry. Organic or low-input products offer stimuli and promising opportunities for the integration of linked sectors.

An excellent example of the convergence is found at Mundang-ri and neighboring villages in Hongseong, Chungcheongnam Province, in Korea. Since the so-called "Duck Agricultural Technology" was introduced in 1993, 129 farm households are practising it on almost 120 hectare of rice fields, which is the biggest collective in Korea. The rice produced is totally government-certified and sold by contract to consumers' cooperatives at higher prices than conventionally produced rice (Environmental Agriculture Village News 2001).

With the aids of scholars and professionals, the villagers designed "A Hundred Year Plan for Development of Mundang-ri in the 21st Century" which condensed what they have done so far to re-vitalize their community. The plan includes the use of solar and biogas energy, the formation of natural creeks, the use of natural materials for house-building, and so forth. Power plants using wind and solar energy have been established. Being let through purifying ponds cleans up wastewater and an educational

facility is built in which visitors learn about traditional culture as well as sustainable agriculture (Green Korea United 1998).

Similar practices and experiments are, although not so many, performed in various parts of the country--Kanghwa, Muju, etc., in which SA "innovators" and "early-adopters" or village leaders and villagers try to combine the low-input/organic agriculture with rural development in environmentally sound and sustainable ways. Creating diverse sources of on- and off-farm incomes as integrated with sustainable agriculture orients such activities toward the security of the continued co-development of community on the whole. The necessity of the convergence between the sustainable agriculture and sustainable rural development should be acknowledged as critical in formulating development strategies for the rural economy and society.

VII. Conclusions

This paper is an attempt to describe the development of sustainable agriculture (SA) from a sociological viewpoint. The word sustainability has been the subject of heated debate since its creation, and this paper argues that the commonly known "inter-generational equity" of sustainability needs to be supplemented by the conceptualization of "intra-generational equity" which puts another emphasis on the social justice and (re)distribution among the contemporary societies and people. In this respect, sustainable agriculture should be understood not only as a solution to the "nature vs. nurture" but also as a totality to encompass the agricultural and rural development rather than merely an agricultural technique.

The historical evolution of Korean sustainable agriculture and its admission into the policy domain in early 1990s shows that it has been a rapid process in which the state, too, has played a crucial role. Civilian sustainable agriculture organizations in Korea had stemmed from the philosophical or religious aspirations to restore the soil fertility or Life of nature.

There have been few systematic sociological studies on the

socio-economic characteristics of the SA farmers and/or SA product consumers. A few studies on these topics, however, have revealed that the SA farmers are younger and more educated, which implies that the sustainable agriculture is rather an alternative style of farming performed by more promising farmers. The social characteristics of the consumers are quite similar to those of the producers--they are young, more educated, better off, and very often from the countryside.

The above analysis on the SA organizations and farmers has made it plausible to establish a hypothesis that there exist analytically two types of SA farmers--"movement type" practitioners and "business type" practitioners. A closer sociological analysis on these two types of farmers will be of great help in understanding the Korean sustainable agricultural practice in detail and in establishing strategies for its further development. The final discussion is about the possible convergence between sustainable agriculture and sustainable rural development. Pugliese (2001) has provided excellent explanations on innovation, conservation, participation, and integration with which both are closely related. This paper suggests the argument, and the convergence should be a requirement rather than a possibility.

In spite of the analysis of the sociological aspects of Korean sustainable agriculture in this paper, it is quite clear that more research efforts are urgently needed. It is because social and political concerns for the sustainable agriculture are still on the rise, and it will be a key form of agriculture tomorrow. This paper will hopefully contribute to inducing such research and studies.

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