*Journal of Rural Development 19(Summer 1996) : 19~ 36*



# KOREAN STRATEGIES FOR THE DEVELOPMENT OF FOOD PROCESSING INDUSTRY IN RURAL AREA

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## I. Introduction

Food processing industry (FPI), in general, takes important roles in national economy through various aspects. It releases agricultural marketing constraints as product form changes. Since most agricultural products are bulky and perishable, changing their forms reduces transportation costs and enhances storage duration. It also creates additional demand for agricultural products and enhances convenience of food consumption through diversifying food varieties. In addition, it contributes to activation of the rural economy through provision of employment opportunities and promotion of related industries.

Since the processed food demand is rapidly increasing, promotion of the FPI has become one of the urgent tasks in Korea. Especially, farm products processing industry (FPPI) takes an important position in the agricultural policy because it enhances agricultural marketing efficiency and the activation of the rural economy. The Ministry of Agriculture, Forestry and Fisheries (MAFF) has various promotional programs for the industry to increase farm incomes and diversification of rural economy.

The purposes of this paper are as follows: first of all, to overview the status of the FPI as a whole[1] and the MAFF's policy programs for the promotion of the rural FPI; secondly, to identify

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[1] The paper is prepared for APO Seminar on "Development of Agro-based Industry in Rural", 17-28 June, 1996. Manaila, Philippines.

problems of the rural FPPI; and thirdly, to find developmental strategies for the rural FPPI in Korea.

## II. Status of the Food Processing Industry in Korea

### 1. Share of the Food Processing Industry in National Economy

The demand for processed food is rapidly increasing because of changes in food consumption pattern, an increase in disposable income, and an increase in women's social participation. Especially, consumers' life style pursuing conveniences and varieties leads to high demand for the processed food products in Korea.

**TABLE 1** Share of the Food Processing Industry in the Economy

| Year | Total (A) | Agriculture (B) | Manufacturing (C) | Food Processing (D) | D/A | D/B | D/C |
|---|---|---|---|---|---|---|---|
| <GNP> | ····· | 100 million Won | ····· | | ····· | % | ····· |
| 1975 | 101,358 | 25,710 | 2,828 | 599 | 0.6 | 2.3 | 21.2 |
| 1980 | 367,467 | 56,774 | 11,856 | 1,968 | 0.5 | 3.5 | 16.6 |
| 1985 | 780,884 | 103,518 | 267,366 | 37,021 | 4.7 | 35.8 | 13.8 |
| 1990 | 1,174,881 | 155,835 | 707,751 | 55,972 | 3.3 | 35.9 | 7.9 |
| 1991 | 2,060,265 | 167,148 | 863,664 | 69,252 | 3.4 | 41.4 | 8.0 |
| growth rate(85-91) | 17.6 | 8.3 | 21.6 | 11.0 | - | - | - |
| <Employment> | ····· | 100 million Won | ····· | | ····· | % | ····· |
| 1975 | 11,262 | 5,399 | 1,420 | 150 | 1.3 | 2.8 | 10.6 |
| 1980 | 13,683 | 4,654 | 2,014 | 181 | 1.3 | 3.9 | 3.9 |
| 1985 | 14,970 | 3,733 | 2,437 | 197 | 1.3 | 5.3 | 8.0 |
| 1990 | 18,036 | 3,292 | 3,013 | 207 | 1.1 | 6.3 | 6.9 |
| 1991 | 18,576 | 3,103 | 2,918 | 200 | 1.1 | 6.4 | 6.9 |
| growth rate(85-91) | 3.7 | 3.0 | 3.1 | 1.0 | - | - | - |

Source : National Statistical Office, Report on Mining and Manufacturing Survey, Various Years.

The amount of food & beverage production (in terms of value-added) was 6,900 billion won[2], or equivalent to 3.4% of the GNP and 41.4% of the total agricultural production in 1991. Although the share of food & beverage production in GNP had decreased, absolute production volume of this sector had increased by 13% per year during the 1986~91 period. Current decreasing trend of the share of this sector is due to the rapid growth in other manufacturing sectors such as steel, chemicals, and electronic industries.

The FPI also contributes to the creation of employment opportunities. The number of workers in the food & beverage industries was 200 thousand persons, or equivalent to 1.1% of the total employment, and 6.9% of the employment of manufacturing sector in 1991. Although the number of workers in this sector had increased, the growth rate was very low as shown in <Table 1>.

## 2. Changes in Number and Size of the Food Processing Industry

The number of businesses and employees of the FPI[3] did not

**TABLE 2** Changes in Number and Size of Food Processing Industry

| Year | No. of Business (A) | No. of Workers (B) | Amt. of Production (C) | Amt. of Fixed Capital | B/A | C/A | C/B |
|---|---|---|---|---|---|---|---|
| | ··· 1,000 Person ··· | | ·· 100 million won ·· | | ····· | % | ···· |
| 1975 | 3,381 | 150 | 599 | - | 38.6 | 0.2 | 40 |
| 1980 | 4,617 | 181 | 1,968 | - | 39.2 | 0.4 | 109 |
| 1985 | 4,659 | 197 | 37,021 | 28,314 | 42.3 | 7.9 | 188 |
| 1990 | 4,638 | 207 | 55,972 | 56,344 | 44.6 | 12.1 | 270 |
| 1991 | 4,753 | 200 | 69,252 | 65,354 | 42.1 | 14.6 | 346 |
| growth rate(85-91) | 1.0 | 1.0 | 11.0 | 15.0 | - | - | - |

Source : National Statistical Office, Report on Mining and Manufacturing Survey, Various Years

[2] The FPI with more than five full-time workers is identified as "food & beverages business" in the "Report on Mining and Manufacturing Survey" in Korea.

[3] One US dollar is equivalent to about 800 won in Korean currency.

significantly change during the last 10 years. The number of businesses had increased only from 4,617 units in 1980 to 4,753 units in 1991, and that of employees had increased from 181 thousand persons to 200 thousand persons. However, total production volume of this sector had increased by 35 times and fixed capital had increased by 2.3 times during the same period.

The average fixed capital per FPI had increased from 600 thousand won in 1985 to 1.4 million won in 1991. The capital endowment per worker of the FPI was 3,270 thousand won in 1991, which was 6.2% higher than that of the average manufacturing sector. The amount of value-added production per business was 1,460 million won and it was 21.7% higher than that of the average manufacturing sector for the same time.

## 3. Product Types of the Food Processing Industry

Total number of business in this sector, 4,670 units[4], consist of 4,020 food industries and 650 beverage industries in 1991. The number of food industries consists of marine products (34.2%), other food products (21.7%), bakery and noodle products (11.4%), and grain products (11.1%), while beverage industries consist of alcoholic beverages (73.4%) and non-alcoholic beverages (26.6%) in 1991. The demand for processing high value and quality foods such as meat, milk, fruits, and vegetable products is rapidly increasing in recent years as the disposable income of consumers increase[5].

The amount of total production in this sector was 137,810 million won and it consisted of 107,186 million won from food industries, and 30,624 million won from beverage industries. Dairy products (20.8%), bakery and noodles (16.5%), and marine products (14.8%) took large portions of food industries. However, the growth rate of the bakery and noodle production had decreased.

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[4] Since the FPI in this context includes only a business which has than 5 full-time workers, total volumes of the food & beverage business might be much larger than provided figures if it includes all the size of businesses. According to the "Report on Total Business Survey", there are more than 44,768 businesses which have 340,337 employee in this sector in 1991.

[5] The figure excludes sugar and cocoa industries from the total number of food and beverage industries(4,753 businesses)

**TABLE 3** Food Processing Industry by Types of Products

(Units: Million won, %)

| Types of Products | 1990 | | | 1991 | | |
|---|---|---|---|---|---|---|
| | No. of Business (A) | Amount of Production (B) | B/A | No. of Business (A) | Amount of Production (B) | B/A |
| Food( i ) | 3,886 | 103,522 | 26.6 | 4,020 | 107,186 | 26.7 |
| Meat | 138 | 11,715 | 63.2 | 268 | 11,675 | 43.6 |
| Dairy | 63 | 15,188 | 241.1 | 107 | 22.533 | 208.0 |
| Marine | 1,434 | 14,203 | 9.9 | 1,375 | 15,939 | 11.6 |
| Fruits & Vegetables | 216 | 3,422 | 15.8 | 245 | 7,220 | 29.5 |
| Grain | 522 | 8,101 | 15.5 | 445 | 9,058 | 20.4 |
| Edible oil | 73 | 6,456 | 88.4 | 65 | 6,314 | 97.1 |
| Bakery/Noodle | 550 | 24,113 | 43.8 | 457 | 17,703 | 38.7 |
| Preparations | 167 | 6,870 | 41.1 | 177 | 8,548 | 48.3 |
| Others | 723 | 16,453 | 27.7 | 881 | 8,476 | 9.6 |
| Beverage( ii ) | 590 | 27,521 | 46.6 | 650 | 30,624 | 47.1 |
| Alcoholic | 530 | 14,498 | 27.4 | 477 | 17,584 | 36.9 |
| Nonalcoholic | 60 | 13,022 | 217.0 | 173 | 13,040 | 75.4 |
| ( i ) + ( ii ) | 4,476 | 131,043 | 29.3 | 4,670 | 137,810 | 29.5 |
| Total Manufacturing | 68,872 | 1,779,088 | 25.8 | 72,213 | 2,078,100 | 28.8 |

Note : Food processing industry in this Table excludes sugar and cocoa industries.
Source : Sei-Kyun Choi, et al., p.25, 1993

The production per business of the food & beverage industries was 29.5 million won, which was greater than that of the average manufacturing sector in 1991. The average production per businesses of dairy products (208.0 million won), edible oil (97.1 million won), and nonalcoholic beverages (75.4 million won) were relatively larger, whereas marine products (11.6 million won), and fruits & vegetable products (20.4 million won) were relatively smaller than the average of the food & beverage industries.

## 4. Export Earnings from the Food Processing Industry

Exports of the food & beverage industries amounted was 258 million US dollars and it was equivalent to 0.3% of total export ($76,632 million), and to 8.9% of agricultural exports ($2,888 million) in 1992.

The number of product items that exported more than 10 million US dollars was seven, including Ginseng products, paster, processed vegetables, and processed fruits, etc.

Various Ginseng products such as Red Ginseng, White Ginseng, tea, extract, juice, and powder were exported as much as 79 million US dollars and they took the largest portion of export earnings of the food & beverage industries in Korea. The second largest export item was Ramen, an instant noodles, which earned 39 million US dollars, and third largest item was Kimchi, pickled vegetables, which brought 23 million US dollars into Korea.

Health foods (Ginseng), instant foods (Ramen, noodles, Chinese vermicelli), and Korean traditional foods (Kimchi, soybean sauce, soybean & hot pepper paste, etc.) are rapidly increasing while canned fruits and vegetable products (chestnut, Korean citrus, peach, apple, grape, and mushrooms, etc) are decreasing. This trend in food exports has been caused by the export market structure that depends on the overseas Korean consumers.

## 5. Production Costs of the Food Processing Industry

The production cost per business of the food & beverage industries was 2,600 million won, which was greater than that of the average manufacturing sector, 2,100 million won, in 1991 (National Statistical Office, 1993).

The production costs of the food processing industries consisted of raw materials (79.8%), wages (11%), depreciations (4.7%), and others including charges for fuel, water, and electricity, etc.(4.5%). The cost of raw materials was more than 10% higher compared to the average cost of the manufacturing sector. However, wages and depreciation of the industry were lower than that of the manufacturing sector. Especially, the share of the cost for raw materials in total production costs of grain, dairy, and meat processing industries was

84.4~86.8%, while the share of wages of those industries were 6.4~9.7% of total production costs in 1991.

Although the share of the FPI in GNP, total employment, and export earnings are not very large, the roles of this industry in the national economy are getting more important than that in the previous era. Following the urbanization and industrialization of socio-economic structure in Korea, food consumption patterns and life styles are changing to demand more processed foods. Especially, the demand for health foods, instant foods, and Korean traditional foods are rapidly increasing in recent years.

However, the share of the cost of raw materials in total production costs of FPI is too large in comparison with those of other manufacturing sectors, and obtaining appropriate raw materials should be considered carefully. In addition, the major concerns of the Korean Government are on the safety and sanitation of the food processing with strict regulations. Therefore, it has been frequently suggested to release those government regulations (especially, high entry barriers involved in the approval procedures) as a strategy to promote this industry[6].

## III. Policy Programs for the Promotion of Food Processing Industry in Rural Areas

### 1. Roles and Characteristics of the Food Processing in Rural Areas

The FPI can be categorized as urban type and rural type by the location of the business. An optimal location of the urban type can be identified if transportation cost of raw materials are lower than that of finished products, holding all other conditions same.

Although the urban type of FPI is related to farm incomes by creating the demand for raw materials, it does not have direct relationships with rural employment. However, the rural type of FPI is directly related not only to creating raw materials demand, but also to providing employment opportunities in rural areas. In addition, a

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[6] Per capita GNP increased about 3 times from $2,242 in 1985 to $6,752 in 1991.

large proportion of value-added from the rural type of FPI can be returned to farm sector.

The rural type of FPI can be identified by the following factors: utilizing local farm products as major raw materials and local labors, locating in rural areas, and farmer's participation in management. Since this type of industry takes various roles in the economy, the Korean MAFF has programs for the promotion of FPI as discussed in the following chapter.

## 2. Policy Programs for the Promotion of Food Processing Industry

The Korean MAFF has three different categories of policy programs for the promotion of FPI; Farm Products Processing Industry (FPPI) Promotion, Construction of Rural Industrial Estate (CRIE), and Other Food Processing Industry (OFPI) Promotion.

### A. Program for the Promotion of Farm Products Processing Industry

The FPPI program is designed based upon the "Act for the Promotion of Farm Products Processing Industry and Quality Control for Agricultural Products(1989)". It is a financial support scheme for the businesses which utilize domestic farm products as major raw materials and locate them in rural areas with farmer's management participation. There are two different sub projects: Project for the Promotion of Traditional Food Industry(TFI), and Project for the Promotion of Food Processing Industry in Rural area(FPIR). Although the TFI was characterized as small or very small in business size, operated by farmers and village people, and utilizes local technology and resources, there are no significant differences in the ultimate objectives of these two programs.

The objectives of the FPPI program (including TFI and FPIR) are : (1) to create new demand for domestic farm products, (2) to enhance farm-household incomes through increasing value-added of farm products, (3) to develop Korean type food culture by commercialization of the traditional foods, (4) to stabilize supply and demand of farm products, and (5) to increase non-farm incomes by working at the processing factories in rural areas.

There are product items to be categorized as FPPI target group such as; (1) products that utilize the domestic farm products which are abundant in the region, (2) products that utilize idle labor and local technology in off-farm season, (3) products that produce high value-added and have competitiveness even with small amounts of production, (4) products that allow sanitary marketing and consumption without causing any pollution problems, etc.

Selected businesses can obtain establishment capital for construction of facilities and machineries, and operating capital for improvement of package, and can purchase raw materials. The amounts and conditions of the financial supports are provided in <Table 4>. In addition, the MAFF supports sales promotion through the establishment of specialized sales outlets in large cities, introducing the postal sales system, and advertisement by various events. The FPPI can also get training and technical advices through the Korean Food Development Research Institute.

B. Program for the Construction of Rural Industrial Estates

The CRIE is a program to facilitate rural industrialization through construction of industrial estates in rural areas, and induces businesses in these estates with favorable incentives. The food processing industries which operate in these estates can get relatively cheap land and pollution treat facilities through special rates of financial supports. This program is based on the "Rural Development Special Treatment Act (1989)" and is operated by the three Ministries; MAFF, Trade and Commerce, and Labor.

The objective of the CRIE program is to provide non-farm job opportunities for rural people through introducing manufacturing sector into the rural areas. Although the national economic structure had changed from the agricultural base to the non-agricultural base, rural economy still heavily depends on the agricultural sector in Korea. However, productivity of the agricultural sector is quite low compared to that of non-agricultural sector, and the gross regional production and household incomes in these areas are relatively lower than that in the urban areas. The CRIE program is designed to match the income gap between rural and urban households through providing more attractive non-farm job opportunities in rural areas.

Since the conditions of the industrial location in rural areas are relatively poor, industrialization of these areas is strictly limited[7]. The CRIE program provides cheap industrial land for the FPPI which operates in these rural estates. In addition, this program also provides incentives such as financial supports and tax exemptions for the businesses that operate in these estates.

C. Programs for Other Farm Products Processing Industries

There are programs for the processing industries of other farm products, which promote agro-based industries in rural areas since 1989. Support for the construction of Rice Mills, Slaughter Houses, and other marine and forestry products processing facilities, etc., belongs to this category. Although theses OFPI programs take similar roles in the rural economy, the differences are on the objectives and administrations of the programs.

The main purposes of the OFPI programs are to enhance the marketing efficiency of the farm products, rather than obtaining more value-added from farm products, or to create job opportunities through the processing procedures. Various Departments of the MAFF provide financial supports to establish those processing and marketing facilities with diversified support schemes.

## 3. Situations of the Food Processing Industry Established by Policy Programs

Current situations of the food processing industries which are established upon assistance of the MAFF, are known only by the number of businesses. The number of traditional food industries established by the TFI program was 738 as of the end of 1994. Most of them (except 48 units) are being operated by villages or farmer's cooperatives, because about a half of these businesses is transferred from the "Farm Households Side-business Promotion Program" which focuses on the activation of the farmers' non-farm activities. The number of general food processing industries which were established by the FPIR program was 168 which consist of 60 farmers'

[7] See (Ⅲ.3) for the problems involved in the policy programs.

cooperative operation type and 108 private operation in 1994. Although the number of businesses itself was smaller than that of the traditional food industries, the size of production and employment were relatively larger than that of the TFI. Most FPIR has factory with the size of more than 1,659m$^2$, while TFI has factory which is less than 660m$^2$ in its size.

The number of food & beverage industries established by the CRIE program was 347 and it took 10% of total businesses of the rural estate in 1994. Incentives for this type of food processing industries are treated as incentives for the small & medium industry in general, except the supply of relatively cheap industrial land.

In addition to these multi-purpose type food industries, there are food processing industries established by the OFPI program in view of rationalization of the agricultural marketing. Food processing facilities for 152 rice mills, 100 salutary houses, and 520 meat and marine products had been established in 1994 with the Government supports. Although the number and size of these industries are not large enough, the importance of these industries is getting larger as a matching strategy for the supply of and demand for agricultural products. Most of these industries are being operated by farmers' organizations.

Problems involved in the policy programs to promote food processing industries can be summarized as follows. First, administrative systems are too complex to promote food processing industries. In order to establish a business, for example, it is required for the applicant to get approval from the Ministry of Health & Welfare(MHW), while the MAFF provides financial supports, and the Ministry of Trade & Commerce provides technical and managerial supports.

Second, types and amounts of incentives are differed by project bases although they have similar objectives and characteristics. For example, a food processing industry can get financial supports(loan or grant) from 150 million won to 1,000 million won depending on the type of project[8].

Third, it takes too long (about 15 months) from the approval of

[8] Only 24%(17,348) of total number of manufacturing industries(72,213) in 1991 are located in rural areas.

**TABLE 4.** Policy Programs for the Promotion of Food Processing Industry in Rural Korea

| Types of Projects | Conditions of Incentives |
|---|---|
| FPPI | |
| o TFI | Financial support for facilities(50% grant, 30% loan with 5% interest rate for 10 years)<br>- village cop.: by 120 million won per business<br>- farmer's cop.: by 150 million won per business<br>Loan for cold storage facility<br>- loan by 20-40 million won per business<br>Capital for package improvement<br>- loan by 30 million won per business |
| o FPIR | Loan for facilities by 70% of required capital<br>- farmer's cop.: 50% grant, 30% loan with 5% interest rate for 10 years<br>- businessmen: loan by billion won with 8% interest rate for 10 years |
| CRIE | Financial support(grant) for estate construction<br>- general: 35,000-55,000 won/3.3m$^2$ by location<br>- food industry: 85,000 won/3.3m$^2$<br>Loan for facilities & operation of the factory<br>- loan by 900 million won with 7% interest rate for 4-10 years<br>Various tax exemptions |
| OFPI | Loan for facilities by 70% of required capital<br>- farmer's cop.: 50% grants and 30% loan with 5% interest rate<br>- businessmen: loan with 8% interest rate |

Source : MAFF, Republic of Korea. 1995

policy target group to get incentives. Furthermore, approval of policy target group does not imply automatic supports because those procedures are controlled under different authorities.

Finally, there are no integrated promotional policy programs to

promote all the food processing industries as a whole. Although the MAFF has programs for the promotion of the FPPI, it only covers a part of food industries located in rural areas. In addition, the size of incentives and administrative system for the promotion of the FPPI are different according to the types of projects, although they have similar objectives.

## IV. Operating Problems of Farm Products Processing Industries in Rural Areas

The farm products processing industries (FPPI) in rural area can be categorized as small & medium industry in terms of size, the rural industry in terms of location, and the food processing industry in terms of type of raw materials and products.

Usually, one of the most serious problems of the FPPI as a small & medium industry is its lack of capital. Not only obtaining appropriate raw materials and labors, but also management including research and development, advertisement, and sales promotion are prohibited by this capital shortage of the industries. The FPPI as a rural industry, on the other hand, faces difficulties in transportation caused by poor infrastructure, lack of information, inadequate labor supply, and poor linkage with related industries. The FPPI as food processing industry also faces difficulties with seasonal supply of raw materials which are caused by the characteristics of agricultural production. Thus, this industry faces triple problems caused by the size, the location, and the type of products and raw materials.

According to previous studies[9], the lack of appropriate sales outlets and operating capital, and obtaining raw materials and capital are reported as the most serious bottleneck in the operation of this FPPI. The problems involved in products sales, raw materials supply, and technology and management of the FPPI are discussed in comparison between industries established by the TFI and FPIR.

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[9] Although objectives and product items of the TFI, FPIR, and OFPI are almost same as discussed in the policy program( Ⅲ .2), types and amounts of incentives are quite different, This may cause equity problems and result a reason for losing confidence on the Government policy.

## 1. Problems involved in the Products Sales

Most food processing industries established by the assistance of the MAFF face various problems in sales. For example, selection of product items without survey on consumer preferences and market demand, lack of stable sales outlets, poor quality of products, package and design, and lack of sales promotion, etc., are the causes of poor sales in general.

The FPIR sells more than 84.5% of their products to large city markets(includes 12.5% of export), while the TFI sells only 34.1% of the products to those markets. Large portion of the products which are produced by the FPIR is sold through retail & wholesale shops, specialized marketing companies, and sales shops in urban areas, while that of the TFI is sold through their own factories(local market) or chain stores which are operated by the farmers' cooperatives.

In addition, more than 44.1% of the FPPI in rural areas does not advertize at all. This might have been caused by the shortage of capital endowment of the industry.

**TABLE 5** Types of Sales Outlets of FPPI

| | FPIR | TFI | Average |
|---|---|---|---|
| | ----------%---------- | | |
| Sales Shop in Urban Area | 16.0 | 9.4 | 10.1 |
| Retail & Wholesales | 28.0 | 12.5 | 20.3 |
| Marketing Company | 28.0 | 6.3 | 15.2 |
| Farmer's Cooperatives | 0.0 | 21.9 | 12.7 |
| Sales in Factory | 4.0 | 15.6 | 8.9 |
| Consignment Sales | 12.0 | 15.6 | 12.7 |
| Others | 12.0 | 18.8 | 20.3 |

Source : Reform original data in p.56, Su-Ki Kang, et al., 1992

## 2. Problems involved in the Supply of Raw Materials

There are two problems involved in the supply of raw materials of the FPIR; lack of capital to purchase raw materials and in stability

of appropriate supply quantity. Since these problems constrain operation rate of the factory, enough and proper supply of raw materials is very important for successful management of the business.

Currently, about 70% of FPIR purchase raw materials for demand base which follows operation schedule, and 30% of them purchase all raw materials at once (usually during harvest season). Although raw materials are purchased in the cheapest season, many businesses are unable to do so because of capital shortage.

According to <Table 6>, most food processing industries in rural areas purchase raw materials from farmers or markets. Only 11% of them obtain their raw materials on the contract bases. Although this contract system is strongly recommended for the stable supply of raw materials, extension of the contract farming is strictly limited by poor capital stocks and moral hazard involved in the contracts.

### 3. Problems involved in the Managing Ability and Technology Level

Large number of food processing industries in rural areas are operated by farmers, or farmers' cooperatives due to the government policy programs. Concerning the management ability, only 17.3% of the TFI managers have 5 to 10 years experiences, and the rest of them have less than 5 years experiences in the business. Since they do not

**TABLE 6** Supply of Raw Materials for FPPI

| | FPIR | TFI | Average |
|---|---|---|---|
| | ----------%---------- | | |
| Contract farming | 6.5 | 21.4 | 11.1 |
| Purchasing from market | 29.0 | 14.3 | 19.8 |
| Supply by themselves | 0.0 | 14.3 | 11.1 |
| Purchasing local farmers | 6.5 | 35.7 | 22.2 |
| Purchasing outside farmers | 41.9 | 7.1 | 24.7 |
| Others | 16.1 | 7.1 | 11.1 |

Source: Reform original data in p.44. Su-Ki Kang, et al., 1992

have enough experiences in this sector, their management capabilities are quite unclear.

Furthermore, 42.3% of the TFI depend on inhabited traditional technologies without any refinement of them. Only 3.8% of the industries adapt new technologies and machineries that are developed by research institutes in recent years. Thus, most processing procedures including raw materials preparation, packaging, and transportation in factory depend on manual work.

These situations cause products' quality and productivity problems. Especially, the shortage of labor supply in terms of quantity and quality prevents the development of food processing industry in rural areas.

## V. Concluding Remarks

The food processing industries which are operated by farmers, or farmers' cooperatives in rural areas take significant roles for efficient agricultural marketing, vitalization of farm households and rural economy.

For the purposes of direct connection with promotion of the FPPI to farm household incomes, following conditions should be satisfied: (1) utilizing domestic farm products and labor, (2) location in rural areas, and (3) farmers' participation in the businesses. However, most food processing industries face various problems which are caused by size, location, and type of products of the business. Most small & medium size industries face lack of capital. Especially, the FPI in rural areas faces high transportation costs and lack of appropriate technology, information, and labor supply because of poor infrastructure in these areas. Furthermore, they face unstable supply of raw materials due to the lack of capital to purchase such materials which are produced seasonally.

Based on the Korean experiences, the followings are suggested for the promotion of the food processing industries in rural areas. First, farmers' cooperatives are recommended as major operating body of the FPPI in view of the utilization of the farm products and labor. Although these cooperatives have various problems among farmers, at least they have relative advantages in terms of obtaining

capital and raw materials, sales outlets, and promotion, etc. However, all food processing industries with less than 5 full-time workers should also be included in policy target group because most traditional foods are produced by these very small industries.

Second, principal and subsidiary food products(traditional foods) are desirable for the commercial processing, because technology for the processing of these items are common and there is high potential demand. In addition, the following conditions should be considered in the decision of product items: (1) supply potentials in terms of the acreage, harvesting periods, and varieties, etc. (2) consumers' food consumption pattern including preference and purchasing power, (3) technology level of the processors, (4) competitiveness of the business in terms of taste, quality, and price of the products, and (5) export possibility of the products. Multi processing facilities which can apply similar technology and machinery are recommended for the purpose of maintenance of high operating ratio of factory and risk dispersion.

Third, size and location of the factory should be determined by the potential supply capability of raw materials and potential demand for products. It is recommended that increasing size of the factory should be achieved step by step because most food processing industries face difficulties in sales promotion.

Fourth, securing stable raw materials in terms of quality, price, and quantity are important for the successful operation of the business. To solve these problems, contract farming with farmers' cooperatives is strongly recommended. It may also be useful for farmers because they can get stable sales outlets by contracts.

Fifth, establishment of marketing channels is also very important. Since processors are in a weak position in the negotiation with commercialized marketing agents in terms of bargaining power, establishment of direct sales from producers to consumers and introduction of the OEM system are recommended. It is also a desirable strategy to construct and operate a shopping center invested by various food processors in common. This center may provide not only sales outlets, but also advertising and sales promotional oppurtunities.

Sixth, providing appropriate education programs for the purpose of enhancing technology and management skills of the

processors are strongly recommended. Establishment of the "Agribusiness Incubator" which has functions to provide technology and management assistance from development of products to provision of advice for sales promotion is also recommended.

Finally, for the development of food processing industry as a whole, a promotional policy should be established. Approval on opening business and promotion of the industry should be treated by one authority, and these approval procedures should be simplified. In addition, introduction of One-Stop Shop is recommended for the convenient administration, especially, to help starting businesses in this sector.

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